



**FINAL
SITE INSPECTION PRIORITIZATION REPORT
ESSEX CHEMICAL CORP. SITE
SAYREVILLE, MIDDLESEX COUNTY, NEW JERSEY**

CERCLIS ID No.: NJD002568715

VOLUME I OF III

**EPA Contract No.: 68-W5-0019
TDD No.: 02-99-08-0084
Document Control No.: START-02-F-03982**

July 2000

Prepared for:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Prepared by:

**Region II Superfund Technical Assessment and Response Team
Roy F. Weston, Inc.
Federal Programs Division
Edison, New Jersey 08837**



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SUBMITTED BY:

Kelley A. Curran
Kelley A. Curran
START Project Manager

Date 7/19/00

Dem Font for KC
Kathy Campbell
QA/QC Review

Date 7/14/00

W. Scott Butterfield
W. Scott Butterfield, CHMM
Site Assessment Team Leader

Date 7/19/00



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January 2000

SUBMITTED BY:

Kelley A. Curran

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START Project Manager

Date 1/11/00

Kathy Campbell

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QA/QC Review

Date 1/11/00

W. Scott Butterfield

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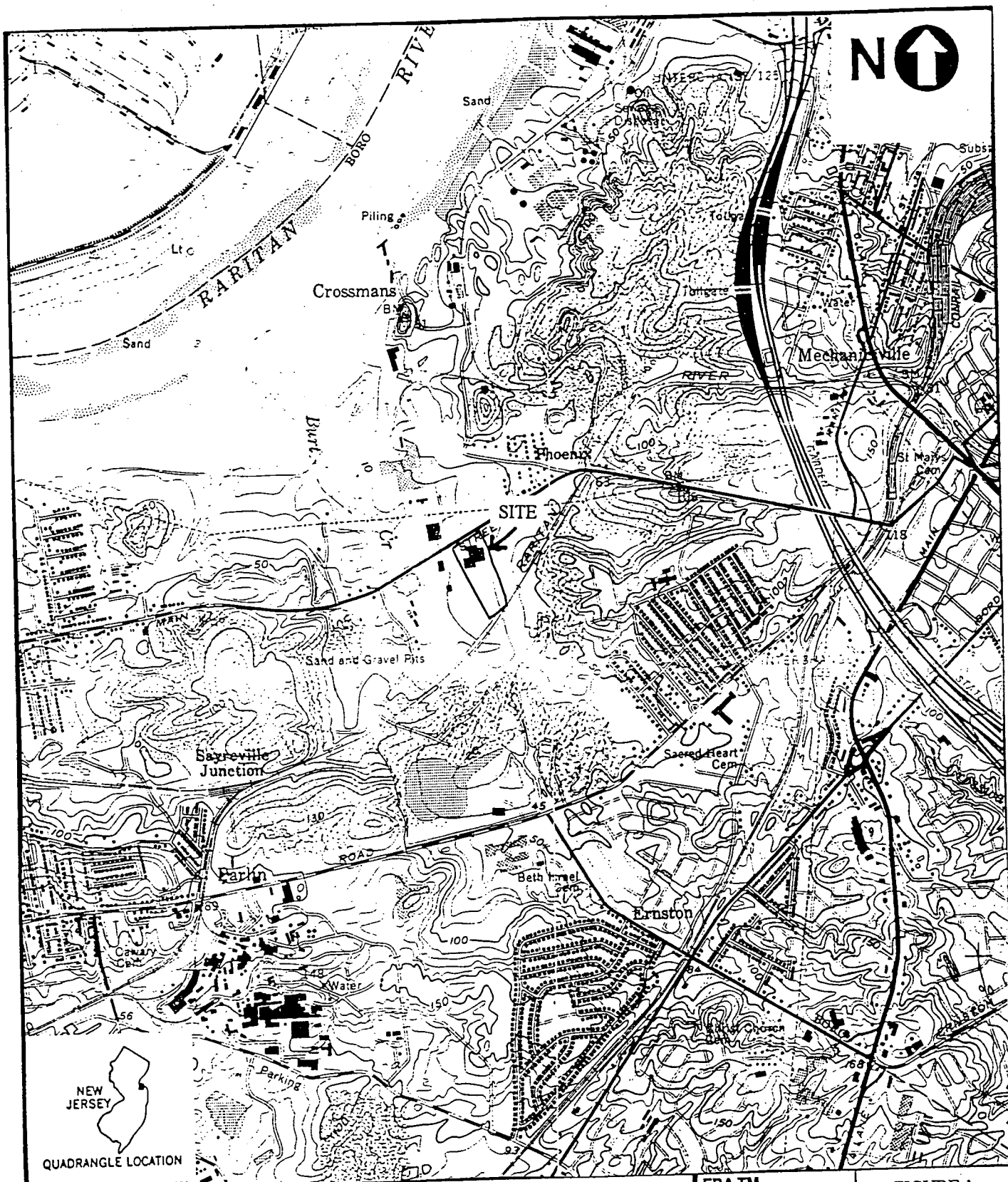
Date 1/11/00

SITE SUMMARY

The former site of Essex Chemical Corp. (CERCLIS ID No. NJD002568715), a.k.a. Essex Specialty Products, Inc. (Essex), is located at Crossman Road South on Block 251, Lots 2.01 and 2.02 in Middlesex County, Sayreville, New Jersey. The site encompasses approximately 15 acres (Ref. Nos. 1; 2; 3). The site is located in an industrial/commercial area and is bound to the north by Main Street; to the west by Crossman Road South; to the south by the Raritan River Railroad; and to the east by wooded property. Lot 2.01 encompasses the northern portion of the property, while Lot 2.02 encompasses the southern portion of the property. The site is not completely fenced; the fence is interrupted between the two lots. The site is located approximately 4,000 feet south of the Raritan River. Streams and marshes present in the area drain to the Raritan River which flows to the Raritan Bay. A drainage ditch is located approximately 100 feet north of the facility office building. The ditch water flows west into Burt Creek which eventually discharges into the Raritan River (Ref. Nos. 4, pp. 6, 11; 12; 37). Figures 1 and 2 present a Site Location Map and Site Map, respectively.

From 1945 to 1964, the site was owned by Such Clay Company. Prior to 1964, the site consisted of unused woods. In September 1964, the titles of certain parcels of land and premises were transferred to Essex. Portions of the property were also purchased by Kaplan and Sons Construction, who sold the property to Essex Chemical Corporation in March 1967 (Ref. No. 4, pp. 96, 97). In September 1988, D.C. Acquisition Company (a wholly-owned subsidiary of Dow Chemical Company) merged into Essex Chemical Corp. With this transaction, Essex Chemical Corp. became a wholly-owned subsidiary of Dow Chemical Company. This transaction also triggered an Environmental Cleanup Responsibility Act (ECRA) investigation by the New Jersey Department of Environmental Protection (NJDEP) (Ref. No. 4, pp. 148 through 150). In July 1990, Essex Chemical Corporation transferred ownership to Essex Specialty Products, Inc. (Ref. No. 4, pp. 178, 245 through 248). According to the 1999 Sayreville Boro Real Property Tax List, Block 251, Lot 2 was divided into Lots 2.01 and 2.02. Canfield Properties, LLC is listed as the owner of Lot 2.01 and Ellren, LLC is listed as the owner of Lot 2.02 (Ref. No. 3). During a November 1999 off-site reconnaissance performed by the Region II Superfund Technical Assessment and Response Team (START), it was noted that the southern portion of the property is now occupied by Chemo Dynamics, Inc. and the northern portion is now occupied by Canfield Technologies, Inc. The Director of Engineering at Chemo Dynamics stated that ownership of the southernmost portion of the property (Lot 2.02) was transferred from Ellren, LLC to Chemo Dynamics Limited Partnership on 2 June 1999 (Ref. No. 12, p. 6).

A 90,000 square foot one- and two-story building occupies Lot 2.01. This building was built in 1965 and contains office, manufacturing, and warehouse space. A research laboratory was built in 1982 and currently occupies Lot 2.02 (Ref. No. 4, pp. 6; 12). Essex Chemical Corp., manufacturer of industrial sealants, adhesives, coatings and vulcanizable elastomers for the automotive industry, began operations in April 1965. The latex manufacturing operation ceased circa 1984 and the propylene hot-metal adhesive operation ceased in 1986. Solvents, plasticizers, latex, polypropylene, and isocyanates were used in the manufacturing processes. Waste products generated from manufacturing processes included waste flammable liquids, primers, sludges, and other products generated from coating and adhesive operations. Tank wash residues unsuitable for reclamation, waste flammable solvents from tank washing, and waste oils from the changing of vacuum pumps and



WESTON
MANAGERS DESIGNERS/CONSULTANTS

Roy F. Weston, Inc.
FEDERAL PROGRAMS DIVISION

IN ASSOCIATION WITH RESOURCE APPLICATION, Inc.
C.C. JOHNSON & MALHOTRA, P.C., R.E. SARRIERA ASSOCIATES,
PRC ENVIRONMENTAL MANAGEMENT, AND GRB ENVIRONMENTAL SERVICES, INC.

EPA TM

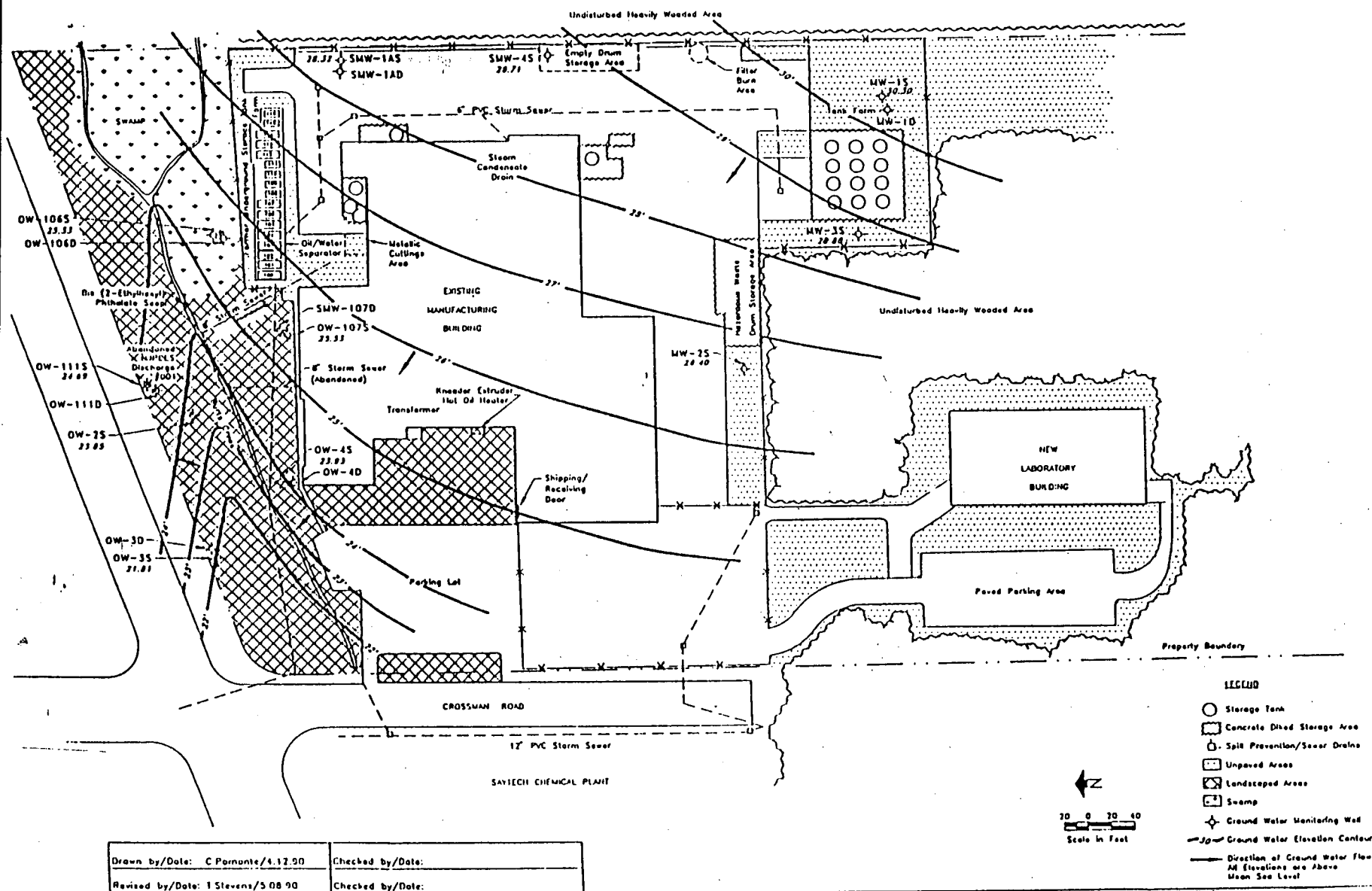
CATHY MOYIK

START PM

KELLEY CURRAN

FIGURE 1
SITE
LOCATION MAP

ESSEX CHEMICAL
SAYREVILLE,
NEW JERSEY



Roy F. Weston, Inc.
FEDERAL PROGRAMS DIVISION

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PHC ENVIRONMENTAL MANAGEMENT, AND GRB ENVIRONMENTAL SERVICES, INC.

TITLE:
Figure 2
Site Map

SOURCE: NJDEP, Div. of Responsible Party
Site Remediation
Bureau of Site Assessment
Site Inspection Report

SITE NAME, LOCATION:
Essex Chemical Corp.
Sayreville, NJ

COMPILED BY:
Region II START: December 1999



SITE SUMMARY (Continued)

compressors were also generated. Methyl ethyl ketone (MEK) or toluene were used to clean the reactors. These solvents were contained in drums and held on site in a designated paved, fenced, and locked hazardous waste drum storage area for less than 90 days. The drums were then manifested for disposal and reclaimed off site at a permitted treatment, storage, and disposal (TSD) facility (Ref. No. 4, pp. 6, 7, 244).

An underground storage tank (UST) farm was installed in 1965 following the purchase of the property by Essex. The farm was installed northeast of the manufacturing plant and consisted of 16 partially buried tanks (Ref. No. 4, p. 114). The tanks ranged in size from 1,500 to 7,500 gallons and contained toluene, xylene, mineral spirits, reclaimed solvents, MEK, bis (2-ethylhexyl) phthalate, diisodecyl phthalate, and diesel fuel (Ref. No. 4, pp. 7, 27, 28).

In July 1975, Essex was issued a New Jersey Pollutant Discharge Elimination System (NJPDES) Permit to discharge non-contact cooling water and boiler blowdown condensation water to the drainage ditch leading to Burt Creek (Ref. No. 4, pp. 100, 101, 394 through 400). Essex received an Affidavit of Exemption from their NJPDES permit due to the removal and permanent sealing of all discharge pipes on 15 July 1985 (Ref. No. 4, pp. 100).

Several spills were documented during Essex's years of operation. During an inspection conducted by the NJDEP on 25 August 1977, a sheen was observed on the drainage ditch water located north of the manufacturing building. Black staining was also noted along the banks of the ditch. According to an Essex employee, on 14 March 1977, a spill of 400 gallons of amorphous polypropylene occurred. A follow-up inspection on 17 September 1977 noted all visually contaminated soil and debris had been removed and filter fences were installed within the ditch (Ref. No. 4, p. 223). During the week of 26 June 1978, Essex reported a 100-gallon spill of dioctyl phthalate from one of the holding tanks in the UST farm. An area of approximately 100 by 100 feet was saturated with product. Essex hired Olsen and Hassold Corporation for the cleanup and disposal work. Upon inspection, the company was found discharging the contents of a vacuum truck through a filter fence into the drainage ditch. As a result, the company was given an official Notice of Violation (NOV) (Ref. Nos. 4, pp. 225 through 227; 9). On 30 August 1978, a 200-gallon spill of bis (2-ethylhexyl) phthalate oil occurred as a result of a storage tank being overfilled during a transfer operation. Some oil and vermiculite were washed into the ditch due to heavy rains. A NJDEP representative noticed an oily sheen on the water surface while visiting a neighboring company (Ref. No. 4, pp. 229 through 232).

Essex submitted a U.S. Environmental Protection Agency (EPA) Hazardous Waste Permit application in November 1980 to obtain storage facility status. They were planning to construct an incinerator and surface impoundment to dispose of manufacturing-related waste products (Ref. No. 10). Subsequent correspondence states that the construction did not take place and it was no longer under consideration due to the fact that they could arrange for disposal of all wastes within the 90 days from generation permitted to generators of hazardous wastes. As a result, the company asked to be included only as a hazardous waste generator (Ref. Nos. 4, pp. 220; 11). On 18 August 1983, the NJDEP responded by excluding Essex as a TSD facility (Ref. No. 4, pp. 269 through 271).

SITE SUMMARY (Continued)

Removal of all USTs took place in January 1983 as a result of the August 1978 spill. Excavation, cleaning, and disposal of the tanks were performed by Olsen and Hassold, Inc. During the removal of the USTs, a wash solvent tank was punctured and approximately 200 gallons of material spilled into the excavation. Solvent odor and staining were observed during the excavation of five other tanks (Ref. No. 4, pp. 250, 251). Analytical data of three samples collected during the removal of the tanks (wash water spill, groundwater under Tank 11, and groundwater under Tank 13) indicated the presence of ethylbenzene, tetrachloroethylene, toluene, methylene chloride, and phthalates (Ref. No. 4, pp. 252 through 257). This storage area was replaced with an aboveground storage tank (AST) farm (10 tanks) with secondary containment, which included a reinforced concrete floor and concrete-diked wall. This tank farm was located southeast of the manufacturing facility. Materials stored in the tanks include MEK, reclaimed solvents, toluene, di-isodecyl phthalate, bis (2-ethylhexyl) phthalate, and diesel fuel (Ref. No. 4, pp. 7, 27, 28).

On several occasions, smoke emissions were observed coming from the Essex facility. On 21 October 1977, smoke emissions from a hot-melt storage tank heater were observed during an inspection conducted by the Central Jersey Regional Air Pollution Control Agency. As a result, an NOV was issued to Essex. On 10 December 1979, excessive black smoke emissions were observed coming from Cleaver Brooks boiler stack. Essex received a second NOV for this incident. Smoke emissions were again observed coming from the hot-melt storage tank heater on 23 March 1980. Once again, Essex was issued an NOV. On 7 November 1985, the Middlesex County Health Department investigated Essex due to a complaint of burnt plastic type-odors emitted from the plant (Ref. No. 4 pp. 12, 406 through 408). During an on-site reconnaissance performed by Region II START on 8 November 1999, air monitoring readings were taken continuously; no readings were recorded above background (Ref. No. 12).

Along with numerous inspections, several investigations/assessments were conducted throughout the operating history of Essex Chemical Corp. A Preliminary Assessment (PA) was performed by NUS Corporation in 1989 (Ref. No. 4 pp. 193 through 203). A Phase I Investigation, including media sampling, was conducted by Environmental Resources Management, Inc. during March and April of 1990 (Ref. No. 4, pp. 273 through 347). On 15 October 1991, the NJDEP conducted a Preliminary Sampling Assessment (Ref. No. 4, pp. 205, 206). The NJDEP prepared a Site Inspection (SI) report in October 1991 (Ref. No. 4).

The most recent investigation was performed by Woodward Clyde Consultants (WCC). The investigation was part of an extensive ECRA Cleanup Plan. Under the direction of the NJDEP, the work spanned from January 1991 through October 1996. Soil excavations were conducted in the vicinity of the former UST farm and resulted in the removal of approximately 3,500 tons of contaminated soil. Several post-excavation sampling events took place. Soil, groundwater, and surface water from the drainage ditch were collected. The contaminants detected in the samples included bis (2-ethylhexyl) phthalate, toluene, and xylene; these compounds are attributable to site operations. The investigation included the installation of additional on-site monitoring wells, as well as piezometers (Ref. No. 24, pp. 7 through 9). On 22 May 1997, WCC submitted a letter to the NJDEP regarding the abandonment of on-site monitoring wells (Ref. No. 6). Upon completion of

SITE SUMMARY (Continued)

the investigation, the NJDEP issued a letter dated 3 October 1997 to Dow Chemical that approved the "no further action" proposal submitted by WCC (Ref. No. 7).

The site overlies the Potomac-Raritan-Magothy Aquifer System (PRMAS), which is part of the New Jersey Coastal Plain Aquifer System. The PRMAS is the major source of groundwater in Middlesex County. Below the site, the PRMAS is comprised of two aquifers, the Old Bridge and Farrington, with a separating confining layer. Public drinking water is supplied from wells screened in both aquifers; approximately 102,503 people are served by these wells (Ref. Nos. 17; 27; 29). The nearest downslope surface water is Burt Creek. The creek is located approximately 1,000 feet west of the site, and flows in a northerly direction for approximately 0.75 mile before it discharges into the Raritan River. The Raritan River flows eastward into the Raritan Bay, which discharges to the Lower New York and Sandy Hook Bays. A drainage ditch located on the site property drains into Burt Creek (Ref. Nos. 4, p. 199; 12). There are several federal and state-listed endangered and threatened species within the vicinity of the site (Ref. No. 36). There are approximately 9 miles of wetland frontage along the 15-mile surface water migration pathway, and approximately 3,433.5 acres of wetlands within a 4-mile radius of the site (Ref. Nos. 30; 37; 38). There are no residences, schools, day care facilities, or terrestrial sensitive environments within 200 feet of observed contamination (Ref. Nos. 12; 36). There are approximately 51 workers on site; approximately 113,374 people live within 4 miles of the site (Ref. Nos. 12, p. 5, 6; 15; 37).

SITE ASSESSMENT REPORT: SITE INSPECTION PRIORITIZATION**PART I: SITE INFORMATION**

1. Site Name/Alias Essex Chemical Corp. / Essex Specialty Products, Inc.
Street One Crossman Road South
City Sayreville State NJ Zip 08872
2. County Middlesex County Code 23 Cong. Dist. 06
3. CERCLIS ID NO. NJD002568715
4. Block No. 251 Lot Nos. 2.01 and 2.02
5. Latitude 40° 28' 27.32" N Longitude 74° 19' 06.14" W
USGS Quad(s). South Amboy, NJ
6. Approximate size of site 15 acres
7. Owner (Lot 2.01) Canfield Properties, LLC Telephone No. 732-316-2100
Street One Crossman Road South
City Sayreville State NJ Zip 08872
Owner (Lot 2.02) Chemo Dynamics L.P. Telephone No. 732-721-4700
Street 3 Crossman Road South
City Sayreville State NJ Zip 08872
8. Operator (Lot 2.01) Canfield Technologies, Inc. Telephone No. 732-316-2100
Street One Crossman Road South
City Sayreville State NJ Zip 08872
Operator (Lot 2.02) Chemo Dynamics, Inc. Telephone No. 732-721-4700
Street 3 Crossman Road South
City Sayreville State NJ Zip 08872

9. Type of Ownership (Lot 2.01)

☒ Private ☐ Federal ☐ State
☐ County ☐ Municipal ☐ Unknown ☐ Other

Type of Ownership (Lot 2.02)

☒ Private ☐ Federal ☐ State
☐ County ☐ Municipal ☐ Unknown ☐ Other

10. Owner/Operator Notification on File (Lot 2.01)

☐ RCRA 3001 Date CERCLA 103c Date

☐ None ☒ Unknown

Owner/Operator Notification on File (Lot 2.02)

☐ RCRA 3001 Date CERCLA 103c Date

☐ None ☒ Unknown

11. Permit Information

<u>Permit</u>	<u>Permit No.</u>	<u>Date Issued</u>	<u>Expiration Date</u>	<u>Comments</u>
Freshwater Wetlands State-wide General Permit	1219-90-0009.2-GP	02/07/91	02/07/96	Permit authorized for the temporary loss of wetlands due to the excavation of contaminated soils involved with an ECRA cleanup.
NJDEP	045375	Unknown	Unknown	Permit to construct, install, and operate air pollution equipment.
NJPDES	NJ0003093	07/31/75	07/31/80	Allowed the facility to discharge non-contact cooling water and boiler blowdown condensation water to Burt Creek.

12. Site Status

☐ Active ☒ Inactive ☐ Unknown

13. Years of Operation: circa 1965 to 1994
14. Identify the types of waste sources (e.g., landfill, surface impoundment, piles, stained soil, above- or below-ground tanks or containers, land treatment, etc.) on site. Initiate as many waste unit numbers as needed to identify all waste sources on site.

(a) Waste Sources

Waste Unit No.	Waste Source Type	Facility Name for Unit
1	<u>Contaminated Soil</u>	<u>Residual Contamination of Excavated Areas</u>

Ref. Nos. 1; 2; 3; 4, pp. 194, 394, 395, 403, 404; 7; 12; 13; 18; 24; 37.

(b) Other Areas of Concern

The current owner of Lot 2.01, Canfield Technologies, stores raw materials and cleaning solvents in drums on the eastern side of the property. Some of the drums are on pallets, while others sit directly upon the pavement. Labels on the drums indicate the following materials are stored: acetate, monoethanolamine, ethanol, deionized water, and isopropyl alcohol. According to the CEO of Canfield Technologies, drums containing water-soluble oil and hydraulic oil are also stored in this area. Cylinders containing oxygen, acetylene, and propane are also stored on the eastern border of the property. The cylinders are contained by cinder blocks and fencing (Ref. No. 12).

Another area of concern was observed during an inspection conducted by the NJDEP on 18 October 1990. During the inspection, friable asbestos was observed outside the manufacturing facility leading to a loading station (Ref. No. 19, p. 5).

15. Describe the regulatory history of the site, including the scope and objectives of any previous response actions, investigations and litigation by State, Local and Federal agencies (indicate type, affiliation, date of investigations).
- ▶ In July 1975, Essex was issued NJPDES Permit No. NJ0003093 to discharge non-contact cooling water and boil blowdown condensation water to Burt Creek.
 - ▶ On 25 August 1977, the NJDEP conducted an inspection of the Essex Chemical Corp. site due to the complaint of an oil spill. A follow-up inspection was conducted on 15 September 1977 after cleanup activities were completed.
 - ▶ The NJDEP conducted an inspection on 30 June 1978 in response to a 100-gallon dioctyl phthalate spill. Surface and groundwater samples were taken. Numerous follow-up inspections were conducted in July 1978.
 - ▶ On 30 August 1978, approximately 200 gallons of dioctyl phthalate were spilled as a result of a storage tank being overfilled during a transfer operation.
 - ▶ An NOV was issued to Essex on 6 October 1978 as a result of violating the Oil Pollution Prevention regulations.

15. Regulatory History (continued)

- ▶ The Roy F. Weston, Inc. Spill Prevention and Emergency Response (SPER) Division conducted a Spill Prevention, Control, and Contingency (SPCC) Plan inspection on 28 January 1983.
- ▶ A Compliance Evaluation Inspection was conducted by the NJDEP Division of Water Resources on 4 October 1983.
- ▶ The NJDEP conducted a generator inspection at the Essex facility on 9 December 1983.
- ▶ The NJDEP issued a Consent Agreement and Order on 11 May 1984 related to the October 1978 NOV.
- ▶ Essex received an Affidavit of Exemption for their NJPDES permit due to the removal and permanent sealing of all discharge pipes on 15 July 1985.
- ▶ The NJDEP Division of Waste Management performed an inspection of the Essex site on 4 February 1987.
- ▶ The NJDEP issued a Notice of Civil Administrative Penalty Assessment to Essex on 3 April 1987 for alleged accumulation of hazardous waste in containers on site in excess of 90 days and for failing to conduct daily inspections of hazardous containment areas.
- ▶ On 20 October 1988, Essex entered into an Administrative Consent Order (ACO) due to an ECRA investigation.
- ▶ An inspection was performed on 22 May 1989 by the NJDEP Bureau of Environmental Evaluation and Cleanup Responsibility Assessment (BEECRA).
- ▶ An off-site reconnaissance was conducted by NUS Corporation on 13 July 1989 as part of a PA of the site.
- ▶ Field sampling was conducted as part of a Phase I Investigation by Environmental Resources Management, Inc. during March and April of 1990.
- ▶ An amendment to the October 1988 ACO was entered by Essex and the NJDEP in June 1990.
- ▶ NJDEP BEECRA inspections were performed on 18 October 1990, 12 December 1990, 17 May 1991, and 25 June 1992.
- ▶ On 15 October 1991, the NJDEP conducted a Preliminary Sampling Assessment.
- ▶ The NJDEP prepared an SI report dated 24 October 1991.
- ▶ Numerous sampling events were conducted from January 1991 through October 1996 as part of an ECRA Cleanup Plan implementation conducted by WCC.
- ▶ Excavation activities took place between February and October 1991 as part of the Cleanup Plan implementation conducted by WCC. Excavation backfilling activities were completed in April 1994 by Shilke Construction Co. Inc.
- ▶ All on-site monitoring wells were sealed by Warren George Inc. during April 1997.
- ▶ On 3 October 1997, the NJDEP issued a letter to Dow Chemical stating that the no further action proposal is approved based on final remedial action reports submitted by WCC in July 1992, May 1997, and June 1997.

Ref. Nos. 4, pp. 100 through 102, 193 through 203, 205, 206, 208 through 218, 223, 229 through 232, 234 through 243, 259, 260, 264 through 267, 273 through 347, 394, 395, 445 through 447, 449 through 452, 454 through 464, 466 through 469; 6; 7; 8; 9; 18; 19.

- a) Is the site or any waste source subject to Petroleum Exclusion? Identify petroleum products and by products that justify this decision.

A review of available background information indicates that Essex stored heavy naphenic oil (Sun Oil) and diesel fuel in underground storage tanks. These materials are subject to Petroleum Exclusion because the exclusion applies to petroleum, including crude oil or any fraction thereof, natural gas, natural gas liquids, liquefied natural gas, and synthetic gas usable for fuel.

Ref. No. 4, pp. 7, 27, 28.

- b) Has normal farming application of pesticides registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) occurred at the site? Have pesticides been produced or stored at the site? Have there been any leaks or spills of pesticides on site?

The site is not located on farm land. There is no record of normal application of FIFRA pesticides on site. Pesticides were not produced on site and there have been no reported leaks or spills of pesticides on site.

Ref. Nos. 4; 12.

- c) Is the site or any waste source subject to RCRA Subtitle C (briefly explain)?

Essex submitted an EPA Hazardous Waste Permit application in November 1980 to obtain storage facility status. The company was planning to construct an incinerator and surface impoundment to dispose of manufacturing-related waste products. In a letter dated 26 January 1982 to the USEPA, Essex admits that the construction did not take place and it was no longer under consideration. As a result, the company asked to be included only as a hazardous waste generator. On 18 August 1983, the NJDEP responded by excluding Essex as a TSD facility.

Ref. Nos. 4, pp. 220, 269 through 271; 10; 11.

- d) Is the site or any waste source maintained under the authority of the Nuclear Regulatory Commission (NRC)?

During the on-site reconnaissance conducted by Region II START on 21 May and 8 November 1999, no conditions were noted that would indicate the site or any waste source are maintained under the authority of the NRC.

Ref. No. 12.

16. Do any conditions exist on site which would warrant immediate or emergency action?

During an on-site reconnaissance conducted by Region II START on 8 November 1999, no conditions were noted which would warrant immediate or emergency action.

Ref. No. 12.

17. Information available from:

Contact Cathy Moyik Agency U.S. EPA Telephone No.: (212) 637-4339
Preparer Kelley A. Curran Agency Region II START Date: January 2000

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following items.

Waste Unit 1 - Residual Contamination of Excavated Area

Source Type

<u> </u> Landfill	<u> X </u> Contaminated Soil
<u> </u> Surface Impoundment	<u> </u> Pile
<u> </u> Drums	<u> </u> Land Treatment
<u> </u> Tanks/Containers	<u> </u> Other

Description:

1. Describe the types of containers, impoundments, or other storage systems (i.e., concrete-lined surface impoundment) and any labels that may present.

WCC conducted excavations of the Essex property from March through September 1991 as part of an ECRA Cleanup Plan implementation. Several areas of concern were noted during the investigation, including: Sewer Drain Nos. 5 and 11, Main Excavation/Pavement Area, Original Excavation (Area 1), Abandoned Pipe Area, Subarea D, Oil/Water Separator Area, and Wetlands Area. All excavation activities were conducted to the north of the manufacturing facility in the vicinity of the former underground storage tank farm.

2. Describe the physical condition of the containers or storage systems (i.e., rusted and/or bulging drums).

Post-excavation soil sampling indicated the presence of site-attributable contaminants including toluene, xylenes, and phthalates within the excavation areas. During a November 1999 on-site reconnaissance performed by Region II START, the former excavation areas are now completely covered by grass and/or pavement.

3. Describe any secondary containment that may be present (e.g., drums on concrete pad in building or aboveground tank surrounded by berm).

N/A

Ref. No. 5, pp. 1, 6 through 14, 51 through 62; 12.

Hazardous Waste Quantity

Approximately 175 samples were collected during the WCC Cleanup Plan implementation to define the vertical and horizontal extent of base/neutral, total petroleum hydrocarbon, and volatile organic compound (VOC) contamination. At the conclusion of the excavation activities, approximately 3,500 tons of contaminated soil were transported off site for disposal. According to 1991 Waste Disposal Summary reports submitted by WCC, 1,944 cubic yards (yd³) were transported to Wayne Disposal in Michigan, 270 yd³ were transported to Trade Waste Incineration in Illinois, and 18 yd³ were transported to Ensco in Arkansas for disposal. Additionally, 288 yd³ were transported to Trade Waste Incineration for disposal in 1992. The total volume disposed was 2,520 yd³. The excavation area was approximately 15,553 square feet. The estimated area of remaining contamination is expected to be the same due to the fact that post-excavation samples collected indicated the presence of site-attributable contaminants.

Ref. Nos. 5, pp. 1, 2; 18, pp. 82 through 239; 39.

Hazardous Substances/Physical State

Post-excavation soil samples were collected during an ECRA Cleanup Plan implementation. The samples were collected from 0 to 6 inches in depth along the sidewalls of the excavation, and midway between the top and base of the excavation at 20-ft intervals. Additional samples were collected along the base of the excavation on a 20-ft grid system where groundwater was not encountered. Analytical results of these samples indicated the presence of benzene, toluene, xylenes (total), bis (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, n-nitrosodiphenylamine, 2-methylnaphthalene, dibenzofuran, naphthalene, acenaphthylene, fluorene, phenanthrene, anthracene, and methylene chloride. The physical states of the chemicals used in the manufacturing processes and stored on site were liquid and solid.

Ref. Nos. 4, pp. 7, 427; 18, pp. 18 through 46.

PART III. SAMPLING RESULTS

Several sampling events took place at the Essex site from 1979 through 1996. Based on available background information, it is not known whether any quality assurance/quality control (QA/QC) samples were analyzed in association with samples collected during the earlier sampling periods. Full data packages for more recent sampling periods can be found in the START project file for Essex Chemical Corp. (TDD No.: 02-98-08-0009).

EXISTING ANALYTICAL DATA

Twelve on-site monitoring wells (1S, 1D, 2S, 3S, 3D, 4S, 4D, 106S, 106D, 107S, 111S, and 111D) were installed by WCC as a result of several minor spills and a leaking UST. The wells were sampled by Essex on 30 March 1979. The samples were analyzed by the Essex lab for chemical oxygen demand, oil & grease, toluene, and xylene. Several samples revealed the presence of toluene and xylene (Ref. No. 4, pp. 129, 133 through 135).

In July 1982, eight soil borings and four water/liquid samples were collected at various points around the UST farm. The samples were analyzed by Essex for toluene, MEK, and plasticizers. Toluene and MEK were not detected; however, plasticizers were detected in all samples. Concentrations ranged from non-detected values (ND) to 15,000 parts per million (ppm) in the boring samples (Ref. No. 4, pp. 129, 136 through 142).

WCC performed groundwater sampling on 17 August 1982. Analyses were performed by WMC (General Testing Corp.); analytical results indicated the presence of toluene and bis (2-ethylhexyl) phthalate in several wells, including 53,400 parts per billion (ppb) of toluene detected in Well 107S and 23,000 ppb of bis (2-ethylhexyl) phthalate in Well 106S (Ref. No. 4, pp. 129, 133 through 135).

In January 1983, all 17 underground storage tanks were excavated, cleaned, and disposed by Olsen & Hassold, Inc. Post-excavation sampling was conducted and analysis was performed by Princeton Aqua Science. Three samples were analyzed (wash water spill, groundwater under Tank 11, and groundwater under Tank 13). Analytical results of detected elevated levels of bis (2-ethylhexyl) phthalate (Ref. No. 4, pp. 129, 250 through 257).

On 14 July 1983, groundwater samples were collected from the 12 monitoring wells by Woodward Clyde Consultants. These samples were tested by Chyun Associates for benzene, toluene, total xylenes, and bis (2-ethylhexyl) phthalate. Results revealed contamination in several wells, with one well sample (107S) indicating contamination several magnitudes of order greater than the other wells. This level of contamination was consistent with previous analyses conducted at the site (Ref. No. 4, pp. 130, 133 through 135).

Additional monitoring well sampling took place on 12 January 1984. Analytical testing was performed by WMC. Analytical results showed that the overall levels of contamination had decreased since the previous sampling event (Ref. No. 4, pp. 130, 133 through 135).

Upon NJDEP's request, another round of groundwater and surface water sampling was conducted

on 24 September 1984. Eight monitoring wells (1S, 1D, 2S, 4S, 106S, 106D, 107S, and 111S) and 1 stream sample from the on-site drainage ditch were collected. The analytical testing was performed by WMC. Samples were analyzed for the presence of toluene, total xylene, and bis (2-ethylhexyl) phthalate. Well 107S again showed significant levels of toluene and xylene (1,460 ppb and 440 ppb, respectively) (Ref. No. 4, pp. 130, 133 through 135).

On 13 December 1985, sampling was repeated on the eight wells and stream. Analytical testing was performed by Princeton Aqua Science. Analytical results of the Well 107S sample indicated the presence of 80 ppb of xylene. In addition, 400 ppb of bis (2-ethylhexyl) phthalate was detected in an upstream sample and 150 ppb of bis (2-ethylhexyl) phthalate was detected in a downstream sample (Ref. No. 4, pp. 130, 133 through 135, 473 through 480).

In November 1987, Essex analyzed five water samples (Well 106D, Well 107S, Well 4D, upstream and downstream sample from the drainage ditch). The samples were analyzed for toluene, xylenes, and phthalates. No contamination was detected in any of the samples (Ref. No. 4, pp. 471, 472).

Further site sampling was conducted on 13 and 21 September 1988 by IT Corporation. Twelve monitoring well samples, plus one surface water sample from the drainage ditch, were collected. Analysis was conducted by IT-Analytical Services. The samples were analyzed for volatile organics, base/neutrals, pesticides, polychlorinated biphenyls (PCBs), and metals. Analytical data of Well 107S sample indicated the presence of total xylenes (400 ppb), 1,1,2-trichloro-1,1,2-trifluoroethane (130 ppb), and dichlorodifluoromethane (65 ppm). Eight well samples and the stream sample showed detectable concentrations of bis (2-ethylhexyl) phthalate; concentrations in the well samples ranged from 10 to 78 ppb, while the stream sample contained 950 ppb. Two well samples were found to have chromium concentrations of 99 and 440 ppb; since the facility did not use chromium, its source is unknown (Ref. No. 4, pp. 18, 19, 490 through 498; 22, pp. 94 through 169).

Four soil samples (P-1, P-2, P-3, and P-4), one travel blank (P-5) and one equipment rinse blank (P-6) were collected by Environmental Resources Management, Inc. on 17 January 1989. The soil samples were collected from depths ranging from 0 to 2 feet. The four locations were chosen based on visibly discolored soils observed during previous inspections. The samples were analyzed by International Hydronics Corporation for total petroleum hydrocarbons (TPH), VOCs, VO+15, and base/neutral-extractable organic compounds (BN+15). Soil samples P-2 and P-4 had TPH concentration levels of 1,460 milligrams per kilogram (mg/kg) and 2,200 mg/kg, respectively. Contamination at location P-2 was suspected to be from runoff from parked cars or trucks. The contamination at P-4 was suspected to be from oils which may have leaked onto the soils from various pieces of unused equipment stored in and around this area. Neither target VOCs nor base/neutral-extractable organic compounds were detected in any of the four samples (Ref. No. 22, pp. 41 through 78).

Phase I Investigation Sampling Results

Environmental Resources Management, Inc. performed a series of sampling events as part of a Phase I Investigation under the ECRA program to determine the extent of contamination. Shallow (0 to 6 inches, 12 to 18 inches, and 18 to 24 inches) soil samples and groundwater samples were collected

(Ref. No. 23, pp. 11, 19 through 22, 36, 41).

The first round of Phase I sampling took place on 27 October 1989. Twenty soil samples were collected and analyzed for base/neutrals by Intech Biolabs. Bis (2-ethylhexyl) phthalate (BEHP) was found in 17 of the 20 samples at concentrations ranging from 200 ppb to 1,800,000 ppb. Other contaminants detected include di-n-octylphthalate and phenanthrene (Ref. No. 4, pp. 19, 29 through 31, 500 through 502, 504 through 506).

On 7 December 1989, soil samples (DR-10, DR-11, DR-12, DR-13A, DR-13B, DR-14A, DR-14B, and DR-14C) were collected from five borings and analyzed for base/neutrals by Intech Biolabs. BEHP was detected in all samples except one (DR-10), with concentrations ranging from 55 ppb (sample DR-13B) to 84,000 ppb (sample DR-14B) (Ref. No. 4, pp. 20, 32, 33, 500, 501, 504, 506 through 508).

Soil samples were also collected on 6, 7, and 15 March 1990. A total of 46 samples were collected from seven areas of concern: the phthalate spill and seep area (Area 1), aboveground tank farm (Area 2), hazardous waste drum storage (Area 3), empty drum storage area (Area 4), filter burn area (Area 5), Kneader extruder hot oil heater (Area 7), and steam condensate drain (Area 8). Six stream sediment samples (S-19 through S-23, and SS-12) were collected from the phthalate seep area and near the former NJPDES discharge to the drainage ditch. Five drain sediment samples (S-2, S-3, SS-5, SS-6, and SS-11) were collected from the spill prevention/sewer drains located northeast, southeast, and southwest of the warehouse. Four drain water samples (SW-2, SW-3, SW-4, SW-11) were also collected from spill prevention/sewer drains (Area 9). Two water samples were collected from the drainage ditch within the phthalate spill and seep area (RC-1A and RC-2A). Samples were analyzed by Intech Biolabs for the following parameters: VOCs, base/neutrals, metals, and petroleum hydrocarbons. Twenty samples were analyzed for base/neutrals. The samples with the highest concentrations of BEHP were collected from the former UST area (SS-9A and SS-9B). Samples S-21, SS-9A, and SS-9B showed total volatile organic concentrations of 48,000 ppb, 35,900 ppb, and 13,400 ppb, respectively, with xylene being the major contaminant. Cadmium and mercury were detected in sample SS-13 at concentrations of 3,000 ppb and 1,000 ppb, respectively. Di-n-octylphthalate was detected in samples SW-2, SW-3, and SW-4 at concentrations of 68 ppb, 150 ppb, and 57 ppb, respectively. Toluene was detected in the same samples at concentrations of 3 ppb, 2 ppb, and 8 ppb, respectively. The samples collected at the drainage ditch (RC-1A and RC-2A) contained BEHP at 49 ppb and 2 ppb, respectively. Sample RC-1A also contained xylenes and benzene at 4 ppb and 1 ppb, respectively (Ref. No. 4, pp. 21 through 23, 34 through 44, 46).

On 5 April 1990, 18 groundwater samples were collected by ERM, Inc. The samples were analyzed by Intech Biolabs for VOCs, base/neutrals, and petroleum hydrocarbons. Low levels of VOCs were detected in OW-107S and OW-4S. Meta-xylene was detected at 9 ppb in OW-107S, while trans-1,2-dichloroethene was detected at a concentration of 3 ppb in OW-4S. BEHP and naphthalene were detected in samples MW-1S and MW-1D at concentrations of 22 ppb and 6 ppb, respectively. BEHP was also detected in four other wells (OW-4S, OW-106S, OW-107S, and OW-111S) with levels up to 8 ppb. No other base/neutrals were detected in any of the well samples. No petroleum hydrocarbons were detected in any of the samples (Ref. No. 4, pp. 23, 24, 44 through 46).

ECRA Cleanup Plan Implementation Sampling Results

WCC was contracted by Essex Chemical to implement an ECRA Cleanup Plan. Upon approval of a Soil & Sediment Control Plan submitted by WCC and issuance of a Wetlands General Permit, WCC mobilized activities in February 1991. During the implementation, excavation activities and several sampling events were conducted. In each case, Nytest Environmental, Inc. was the laboratory contracted to perform the analysis on the samples (Ref. No. 18, pp. 9, 10).

Soil Sampling

During the implementation of the approved ECRA Cleanup Plan, approximately 175 soil samples were collected (Ref. 18, p. 14). A total of approximately 3,500 tons of soil were excavated and removed (Ref. 18, pp. 14, 82 through 239). Post-excavation samples were collected 0 to 6 inches in depth along the sidewalls of the excavation, and midway between the top and base of the excavation at 20-ft intervals. Additional samples were collected along the base of the excavation on a 20-ft grid system where groundwater was not encountered. The samples were analyzed for TPH. If the results indicated TPH concentrations greater than 500 ppm, the samples were analyzed for benzene, toluene, xylene (BTX) and base/neutral extractables (BN+15) (Ref. No. 4, pp. 424 through 441).

Sewer Drain Nos. 5 and 11

On 30 January 1991, WCC collected soil samples from the 12 to 18 inch interval beneath the bases of two on-site sewer drains (SD-5 & SD-11) to determine the extent of contamination. The samples were analyzed by Nytest Environmental, Inc. for TPH and BN+15 (Ref. Nos. 4, pp. 424 through 441; 18, pp. 9, 49, 50). Analytical results detected the presence of di-n-butylphthalate at a concentration of 2,500 ppm in sample SD11-1 and 3,000 ppm in sample SD5-1 (Ref. No. 18, p. 20). Therefore, soil was excavated from below the sewer drains (Ref. No. 4, pp. 424 through 441). On 22 May 1991, sewer drain numbers 5 and 11 were excavated and post-excavation samples were collected. Analytical results detected TPH in all samples. Analytical results also showed the presence of phthalates at estimated concentrations ranging from 0.015 ppm to 320 ppm, and polyaromatic hydrocarbons (PAHs) at estimated concentrations ranging from 0.014 ppm to 1.5 ppm (Ref. No. 18, pp. 18 through 20). As a result, additional excavation at sewer drain number 5 took place on 28 June 1991; post-excavation samples were again collected. Results of this testing showed TPH in both samples, as well as phthalates in estimated concentrations ranging from 0.26 ppm to 9.6 ppm. No additional excavation took place in the area of sewer drain number 5 (Ref. No. 18, pp. 9, 21).

Area 1: Subareas A, B-1, B-2, B-3, D and Abandoned Pipe Area

In March 1991, soil excavation activities commenced within Area 1 Subareas A, B-1, B-2, B-3, and D. Post-excavation soil sampling indicated the presence of TPH in all samples. Analysis yielded phthalate concentrations from 0.008 ppm to 1,800 ppm. The following contaminants were also detected in some of the samples: 2-methylnaphthalene, dibenzofuran, naphthalene, acenaphthylene, fluorene, phenanthrene, anthracene, and n-nitrosphenylamine. VOCs, including benzene, toluene, and xylenes, were detected in four samples (B1-2, B1-7, B1-8, and B1-10) (Ref. No. 18, pp. 10, 11, 23 through 28, 51, 52). Subarea A was excavated to facilitate the installation of a sump as part of a seep remediation program; post-excavation samples were not required (Ref. No. 18, pp. 10, 51).

During the excavation of Subarea B-3, an abandoned 12-inch diameter pipe was discovered. Site personnel indicated that the pipe connected to the floor drains within the on-site building. Approximately 50 feet of the pipe were removed and the end was capped. The soil beneath the pipe at the end of the cap was sampled (AP-1, AP-2, and AP-3), along with the water within the pipe, on 14 and 18 March 1991. Analytical results indicated that AP-1 contained 0.520 ppm BEHP. AP-2 contained benzene, toluene and xylenes in concentrations of 0.001, 0.49, and 4.7 ppm, respectively. AP-2 also contained bis (2-ethylhexyl) phthalate at an estimated concentration of 1,300 ppm, as well as 71 ppm of di-n-octylphthalate. Sample AP-3 contained toluene and xylenes at concentrations of 0.001 and 0.036 ppm, respectively. AP-3 also contained an estimated concentration of 4,000 ppm BEHP and 44 ppm of di-n-octylphthalate (Ref. Nos. 4, pp. 424 through 441; 18, pp. 10, 11, 41, 53, 54).

Additional excavation activities were conducted in April 1991 in the area of the abandoned pipe. Post-excavation samples (AP-4 through AP-12) were collected. Analytical results showed toluene concentrations ranging from 4.5 ppm in sample AP-12 to 1,000 ppm in sample AP-8. Xylene concentrations ranged from 11 ppm (sample AP-10) to 170 ppm (sample AP-8). Elevated levels of BEHP were found in every sample. Various other base/neutral compounds were also detected (Ref. No. 18, pp. 10, 11, 39, 40, 53, 54). As a result of these elevated concentrations, excavation activities continued in this area. Post-excavation samples were collected again in late April and early May 1991 (AP-13 through AP-24). Analytical results again indicated the presence of toluene, xylenes, and phthalates, though at lower levels than the previous sampling event. PAHs were detected in one sample only (AP-24) (Ref. No. 18, pp. 10, 11, 36 through 38, 53, 54). WCC proposed that no additional excavation was required in this area (Ref. No. 18, pp. 10, 11).

Area East of Subareas B-1 and B-2

Additional excavation activities were also conducted in the area east of Subareas B-1 and B-2, based on the results of the analytical testing performed on sidewall post-excavation sample B-1. Thirty-six post-excavation samples (AE-1 through AE-36) were collected from 23 April to 14 May 1991. TPHs were detected in all but four samples (158 ppm to 6780 ppm). Only 16 samples were analyzed for BTX and BN+15, because the remaining samples had TPH concentrations less than 500 ppm. All 16 samples showed the presence of phthalates (0.11 ppm to 950 ppm). Nine samples contained BTX (0.0016 ppm in Sample AE-1 to 76 ppm in Sample AE-20). Pyrene was detected in one sample (AE-3) at an estimated concentration of 0.12 ppm, while 14 samples contained estimated concentrations of n-nitrosodiphenylamine from 0.032 ppm to 1.8 ppm (Ref. No. 18, pp. 10, 11, 30 through 35, 53, 54). As a result, the excavation was extended further. Based on these second round post-excavation analytical results, WCC proposed that no additional excavation was required in this area. However, upon the request of NJDEP, two locations (AE-3A and AE-4A) were re-sampled on 8 August 1991. Phthalates were detected in both samples ranging in concentration from 0.61 ppm to 23 ppm (Ref. No. 18, pp. 10, 11, 43). WCC proposed no further action for these two locations (Ref. No. 18, pp. 10, 11).

Wetlands Area

In May 1991, four soil samples (WL-1 to WL-4) were collected from the undisturbed portion of the wetlands. The samples were collected to evaluate the horizontal extent of contamination. Analytical data of samples WL-2 through WL-4 indicated the presence of TPHs at concentrations ranging from

692 ppm to 4,040 ppm. The concentrations of VOCs and BNs, however, were generally less than 1 ppm (Ref. No. 5, pp. 11, 47).

Test Borings Near the Main Excavation

On 31 July 1991, soil samples were collected from test borings (T-1 through T-5) in the pavement area near the main excavation due to the presence of an organic odor. Results of analytical testing indicated the presence of phthalates ranging in concentration from 0.001 ppm to 4.4 ppm. Toluene was detected in four of the samples, ranging from 0.001 ppm to 0.61 ppm. Xylenes were found in sample T-1 at a concentration of 0.052 ppm. WCC proposed no further action in this area (Ref. No. 18, pp. 12, 44, 55, 56).

Oil/Water Separator

On 23 April 1991, a trench was excavated adjacent to the oil/water separator to determine the extent of contamination; six post-excavation soil samples were collected. Xylenes were detected in five of the samples (OW-1, OW-3, OW-4, OW-5, and OW-6) in concentrations ranging from 0.750 ppm to 1.70 ppm. Phthalates, including di-n-butylphthalate, BEHP, and di-n-octylphthalate, were detected in all six samples at concentrations ranging from 0.250 ppm to 2,100 ppm. PAHs, including fluorene, phenanthrene, anthracene, fluoranthene, and pyrene, were also present in every sample at concentrations ranging from 0.037 ppm to 2.5 ppm (Ref. 18, pp. 11, 12, 29, 53, 54). The underground oil/water separator tank was removed in August 1991. Post-excavation soil samples OW-7 through OW-17 were collected adjacent to the tank removal. BTX concentrations were found in 3 of the samples. The presence of phthalates was detected in five of the samples ranging from 0.270 ppm (OW-15) to 960 ppm (OW-10); BEHP was found at the highest concentration of all phthalates detected. PAHs were also detected at concentrations from 0.011 ppm (OW-7) to 0.990 ppm (OW-10). Dibenzofuran was detected in samples OW-8, OW-10, and OW-15 at concentrations of 0.130 ppm, 0.130 ppm, and 0.10 ppm, respectively. N-nitrosodiphenylamine was detected in samples OW-12 and OW-15 at concentrations of 23 ppm and 0.230 ppm, respectively (Ref. No. 18, pp. 11, 12, 42, 43, 55, 56). As a result, additional excavation activities took place on 19 September 1991 and 2 October 1991. Post-excavation samples were collected at sample locations OW-18 through OW-22. Analytical results showed the presence of BTX in one sample (OW-19) and phthalates in three of the samples ranging in concentration from 0.2 ppm to 2,000 ppm. PAHs were detected in samples OW-19 and OW-22 (Ref. No. 18, pp. 12, 45, 57, 58). On 30 October 1991, additional investigations to determine the horizontal limit of contamination in the soils adjacent to the former location of the oil/water separator were conducted. Four soil samples were collected and analyzed for TPH, VOCs, and base/neutral compounds. One of the samples contained total xylenes at a concentration of 0.008 ppm. The same sample also contained the following phthalates: di-n-butylphthalate (0.27 ppm), bis (2-ethylhexyl) phthalate (910 ppm), and di-n-octylphthalate (12 ppm) (Ref. No. 18, pp. 12, 46, 59, 60).

Supplementary Post-Excavation Sampling

On 17 September 1993, WCC conducted supplementary post-excavation soil sampling to evaluate the need for a future deed restriction at the site. Analytical data of Sample B1-2A indicated the presence of BEHP (220 ppm). Concentrations of BEHP in the remaining samples ranged from 0.14 ppm to 27 ppm (Ref. No. 5, pp. 13, 46).

Groundwater and Surface Water Sampling

On 14 November 1991, WCC sampled off-site Ethyl Well No. 6, located west of Crossman Road South. Methylene chloride, di-n-butylphthalate, and bis (2-ethylhexyl) phthalate were detected (Ref. No. 25, pp. 2, 4 through 17). The well was re-sampled on 10 December 1992. The only contaminants detected were methylene chloride (1 ppb) and 2-propanone (1 ppb) (Ref. No. 5, pp. 5, 49).

Twelve monitoring wells were sampled as part of the Phase I Hydrogeologic Assessment Work Plan. Seven new wells (MW-5S through MW-9S, MW-6D, and MW-7D) and five existing monitoring wells (OW-1S, OW-1D, OW-106D, OW-107S, and OW-107D) were sampled on 23 and 24 March 1992. The samples were analyzed for VOCs, BN+15, and TPH. Sample MW-7S showed a BEHP concentration of 780 ppb; monitoring wells MW-7D and MW-9S reported BEHP concentrations of 11 ppb and 29 ppb, respectively. Low levels of toluene (2 ppb to 4 ppb) and methylene chloride (3 ppb to 6 ppb) were detected in the samples. All groundwater samples and associated blanks (except MW-6S) reported levels of 2-propanone. The concentrations of 2-propanone in the samples ranged from non-detected (MW-6S) to 400 ppb (MW-5S) (Ref. No. 24, pp. 15 through 18, 81 through 195).

Another round of monitoring well sampling took place from 8-14 December 1992; 25 on-site wells were sampled. Analytical data of Sample MW-7S indicated the presence of BEHP (140 ppb), while MW-8S had 8 ppb benzene and 45 ppb xylenes. VOCs were detected in all samples at concentrations ranging from 1 ppb to 34 ppb (Ref. No. 5, pp. 12, 48 through 52, 61, 62).

WCC sampled MW-7S and MW-8S on 26 April 1995. The samples were analyzed for benzene, toluene, ethylbenzene, total xylenes, and BEHP. BEHP in MW-8S was below the detection limit of 10 ppb; however a two-fold increase from the December 1992 sampling event was seen in MW-7S (140 ppb to 290 J ppb) (Ref. No. 8, p. 7).

The water from the on-site drainage ditch was sampled on 10 July 1995. Samples were analyzed for BTEX and BEHP. BEHP was detected at a concentration of 13 ppb (Ref. No. 26, p. 5).

On 19 July 1995, MW-8S, OW-4S, and the drainage ditch between them was sampled (DD-2). Only DD-2 showed 7 ppb BEHP while all other samples were non-detected values for the target compounds (Ref. No. 26, p. 5).

On 20 November 1995, the downstream drainage ditch was re-sampled along with monitoring wells MW-7S, MW-8S, OW-2S, OW-4S. BEHP was only detected in MW-7S (88 ppb) and OW-2S (1 ppb) (Ref. No. 8, p. 7).

On 22 April 1996, the following monitoring wells were re-sampled: MW-7S, MW-8S, OW-2S, OW-4S, and DD-2. Analytical results of Sample DD-2 showed 1 ppb of BEHP. BEHP was detected in MW-7S and OW-2S at a concentration of 11 ppb in each (Ref. No. 8, p. 7). Another round of sampling was conducted at these locations on 25 July 1996. BEHP was detected in MW-7S (62 ppb), showing an increase from the April sampling event (Ref. No. 8, p. 7). A third and final round of sampling took place on 24 October 1996. The four monitoring wells were analyzed for BTEX and

BEHP. The drainage ditch sample (DD-2) was only analyzed for BEHP. Analytical results indicated 18 ppb BEHP in Sample OW-2S, 24 ppb BEHP in MW-7S, and 25 ppb BEHP in MW-8S (Ref. No. 8, pp. 6, 16 through 42).

SITE INSPECTION PRIORITIZATION SAMPLING RESULTS

No samples were collected by Region II START during the Site Inspection Prioritization (SIP) evaluation of the Essex site. Based on a review of the available background information and analytical data, and the additional Hazard Ranking System (HRS)-relevant information collected during the SIP evaluation, it was determined that further sampling was not necessary to characterize the site.

PART IV: HAZARD ASSESSMENT**GROUNDWATER ROUTE**

1. Describe the likelihood of a release of contaminant(s) to the groundwater as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence and relationship to background.

A review of available background analytical data suggests that a release of contaminants attributable from the site to groundwater is observed. During groundwater sampling events conducted by WCC from March 1992 through October 1996, contaminants such as phthalates, benzene, toluene, and xylenes were detected in on-site monitoring wells. The direction of groundwater flow within the shallow aquifer beneath the site was determined by WCC. The direction of groundwater flow within the deep aquifer beneath the site was determined by ERM, Inc. As a result, samples collected from monitoring wells OW-1S (shallow) and OW-1D (deep) can be identified as background samples as they are upgradient to the flow of groundwater. Analytical results of samples taken from various downgradient shallow monitoring wells (MW-7S, MW-8S, and MW-111S) during a December 1992 sampling event showed concentrations of phthalates, benzene, toluene, and xylenes at levels three times greater than in upgradient well OW-1S. Similarly, analytical results of samples taken from various downgradient deep wells (OW-3D, OW-4D, and OW-111D) during the same sampling event showed concentrations of phthalates at levels three times greater than in upgradient well OW-1D. (See summary charts below)

8-14 December 1992--Shallow Aquifer

Sample ID	OW-1S	MW-7S	MW-8S	MW-111S
Contaminant (ppb)				
benzene	ND	ND	8	ND
toluene	ND	ND	ND	5
xylenes	ND	10	45	ND
bis (2-ethylhexyl) phthalate	ND	140	ND	ND
di-n-butylphthalate	ND	ND	ND	12

ND = Not detected.

8-14 December 1992—Deep Aquifer

Sample ID	OW-1D	OW-3D	OW-4D	OW-111D
Contaminant (ppb)				
butylbenzyl phthalate	ND	ND	4	ND
di-n-butyl phthalate	1	18	23	4

ND = Not detected.

These results indicate an observed release of contaminants to both the shallow and deep aquifers located beneath the site. All of these materials are documented to have been used in operations by Essex and/or stored in a UST farm located just north of the manufacturing facility. In addition, several phthalate spills have been documented.

Ref. Nos. 4, pp. 6 through 8, 250, 251, 304; 5, pp. 49, 50; 8 pp. 10, 11.

2. **Describe the aquifer of concern; include information such as depth, thickness, geologic composition, areas of karst terrain, permeability, overlying strata, confining layers, interconnections, discontinuities, depth to water table, groundwater flow direction.**

The site overlies the Potomac-Raritan-Magothy Aquifer System (PRMAS), which is part of the New Jersey Coastal Plain Aquifer System. The PRMAS is the major source of groundwater in Middlesex County; The PRMAS is comprised of the Potomac Group, Magothy Formation, and Raritan Formation. From top to bottom, the system consists of seven members which are: Amboy Stoneware Clay, Old Bridge Sand, South Amboy Fire Clay, Sayreville Sand, Woodbridge Clay, Farrington Sand, and the Raritan Fire Clay. The Old Bridge Sand Member is included in the Magothy Formation and is equivalent to the upper aquifer. The Old Bridge aquifer is characterized by coarse-grained sediments and thin, localized clay beds; it has a permeability of 10^{-3} to 10^{-5} centimeters per second (cm/s) and is approximately 60 feet thick below the site. The depth to the Old Bridge aquifer is approximately 4 to 6 feet and is overlain by surficial sand and gravel. The Old Bridge aquifer overlies the Farrington Sand Member, which is included in the Raritan Formation and is equivalent to the middle aquifer. The Farrington aquifer is characterized by fine- to coarse-grained sand that has lignite, pyrite, and local beds of clay; it has a permeability of 10^{-4} to 10^{-6} . It is approximately 104 feet thick in Sayreville. A confining unit comprised of an upper layer of the South Amboy Fire Clay, a middle layer of the Sayreville Sand, and a lower unit of the Woodbridge Clay separates the Old Bridge aquifer from the Farrington aquifer. The unit is characterized as a thick, continuous unit of clay and silt. The permeability of this confining unit is less than 10^{-7} cm/s. The Old Bridge and Farrington aquifers constitute the aquifers of concern at this site. They are not interconnected due to the continuous confining unit that separates them.

Groundwater can generally be found at a depth of 4 to 6 feet below the ground in the vicinity of the site. Shallow groundwater flow is from southeast to northwest under most of the facility, and becomes more east to west adjacent to Burt Creek. North of Burt Creek, the

shallow ground water flow direction is generally to the south towards Burt Creek. Groundwater flow within the deep aquifer is generally from east to west according to the 1990 Phase I investigation performed by ERM, Inc.

Ref. Nos. 4, pp. 307, 350, 351; 16; 17; 27; 28, p. 4; 34.

- 3. What is the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern?**

Background information indicates that an observed release of site-attributable contaminants to groundwater has occurred. Therefore, the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern is 0 feet.

Ref. Nos. 4, pp. 353 through 364; 8, pp. 7 through 14.

- 4. What is the permeability value of the least permeable continuous intervening stratum between the ground surface and the top of the aquifer of concern?**

The least permeable intervening layer is the surface soils on which the site is situated. Although the soils are described as urban land (e.g. composed of areas that are more than 80 percent buildings or paved parking lots), the soils in the vicinity are described generally as unconsolidated or poorly consolidated sands and clays. These soils have an approximate permeability of 10^{-5} to 10^{-7} cm/s.

Ref. Nos. 4, pp. 198; 16; 28, p. 4.

- 5. What is the net precipitation at the site (inches)?**

The net precipitation at the site ranges from 15 to 30 inches.

Ref. No. 28, pp. 2, 3.

- 6. What is the distance to and depth of the nearest well that is currently used for drinking purposes?**

The nearest drinking water well is a domestic well labeled "McKeon 1" by the USGS. It is located approximately 2.1 miles northeast of the site and is 133 feet deep.

Ref. Nos. 29 pp. 1, 2, 21, 22 ; 37.

7. **If a release to groundwater is observed or suspected, determine the number of people that obtain drinking water from wells that are documented or suspected to be actually contaminated by hazardous substance(s) attributed to an observed release from the site.**

Analytical data from background information suggests that an observed release of contaminants attributable to the site to groundwater has occurred. However, it is unknown whether drinking water wells within four miles of the site are documented or suspected to be actually contaminated by a hazardous substances attributed to the observed release. The nearest drinking water supply well is located 2.1 miles northeast of the site; this domestic well serves an estimated population of 3 people.

Ref. Nos. 4, pp. 6 through 8, 250, 251; 5, pp. 49, 50; 8 pp. 10, 11; 14; 29, pp. 1, 2, 21, 22.

8. **Identify the population served by wells located within 4 miles of the site that draw from the aquifer of concern.**

Potomac-Raritan-Magothy (PRM) Aquifer System

<u>Distance</u>	<u>Public/ Private Supply Pop.</u> <u>Old Bridge Aquifer</u>	<u>Public/Private Supply Pop.</u> <u>Farrington Aquifer</u>
0 - ¼ mile	0	0
>¼ - ½ mile	0	0
>½ - 1 mile	0	0
>1 - 2 miles	0	0
>2 - 3 miles	28,500	9,503
>3 - 4 miles	<u>50,000</u>	<u>14,500</u>
	Total 78,500	Total 24,003

Therefore, the total population served by either private or public groundwater supply sources within a 4-mile radius of the site is approximately 102,503 (78,500 + 24,003).

Ref. Nos. 14; 29; 37.

State whether groundwater is blended with surface water, groundwater, or both before distribution.

The Borough of Sayreville currently operates four public supply wells within a 4-mile radius of the site (SWD Q, SWD R, SWD S, and SWD T). The groundwater from all four wells is blended prior to distribution. The Department also has a surface water intake at the South River/Old Bridge section and the water is pumped to three surface water lagoons in the back of their Bordentown Avenue water treatment plant. However, this water is mostly used in the summer months during high water demand. The South River Water Department currently operates three public supply wells (SRWD 2, SRWD 5, and SRWD 6), as well as a cistern, within 4 miles of the site; the groundwater is not blended prior to distribution. Perth Amboy Municipal Utilities operates four wells within the target distance limit (PAMU 5, PAMU 6A,

PAMU 7, and PAMU 8); all groundwater from these wells is blended prior to distribution. They do not operate any surface water intakes.

Ref. Nos. 29; 37.

Is a designated wellhead protection area within 4 miles of the site?

Wellhead protection areas have not yet been delineated in New Jersey.

Ref. No. 31.

Does a waste source overlie a designated or proposed wellhead protection area? If a release to groundwater is observed or suspected, does a designated or proposed wellhead protection area lie within the contaminant boundary of the release?

Not applicable.

Ref. No. 31.

9. **Identify one of the following resource uses of groundwater within 4 miles of the site (i.e., commercial livestock watering, ingredient in commercial food preparation, supply for commercial aquaculture, supply for major, or designated water recreation area, excluding drinking water use, irrigation (5-acre minimum) of commercial food or commercial forage crops, unusable).**

Groundwater is not used as a resource within 4 miles of the site.

Ref. No. 29.

SURFACE WATER ROUTE

- 10. Describe the likelihood of a release of contaminant(s) to surface water as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence and relationship to background.**

The likelihood of a release of contaminants to surface water is suspected. The NJDEP found a slight sheen on the surface of the on-site drainage ditch water during an inspection on 25 August 1977. It is suspected to have resulted from a 400-gallon amorphous polypropylene spill that occurred in March 1977. Soil and debris were removed from the ditch water and filter fences installed in September 1977.

On 28 June 1978, a di-n-octyl phthalate spill (50 to 100 gallons) occurred. The leak occurred in one of the holding tanks on the tank farm and an area of approximately 100 ft. by 100 ft. was observed to be saturated. Essex hired Olsen and Hassold Corporation for the cleanup and disposal work. During the cleanup, the company was found discharging the contents of a vacuum truck through a filter fence into the drainage ditch. Another spill of di-n-octyl phthalate (approximately 200 gallons) took place on 30 August 1978. The spill occurred as a result of a storage tank being overfilled during a transfer operation. Di-n-octyl phthalate and vermiculite were subsequently washed into the on-site drainage ditch due to heavy rains. An NJDEP representative noticed the oily sheen on the water surface of Burt Creek while visiting a neighboring company.

Minimal analytical data exists for water samples taken from the drainage ditch located in the northern portion of the property. In July 1982, a water sample was taken from where the french drain meets the ditch. Di-n-octyl phthalate and VOCs were detected in the sample. In December 1985, one upstream and one downstream surface water sample were collected from the ditch. BEHP (400 ppb) was detected in the upstream sample. BEHP (150 ppb) and xylenes (19 ppb) were detected in the downstream sample. In September 1988, samples were collected from the ditch again. The upstream sample location was located near a visible seep of clear oily liquid flowing into the ditch in the general location where BEHP was spilled. BEHP (950 ppb) was detected in this sample. In March 1990, two water samples (RC-1A and RC-2A) were collected from the drainage ditch. BEHP (49 ppb), xylenes (4 ppb), and benzene (1 ppb) were detected in sample RC-1A. BEHP (2 ppb) was detected in sample RC-2A. The most recent sampling of drainage ditch water was conducted by WCC as part of an ECRA Cleanup Plan implementation. On 10 July 1995, BEHP (13 ppb) was detected in ditch sample DD-1. The ditch was re-sampled on 19 July 1995; BEHP (7 ppb) was detected (sample DD-2). Location DD-2 was resampled in November 1995, as well as in April, July, and October 1996. Analytical results did not indicate the presence of elevated concentrations of BEHP.

It could not be determined from the background information whether the "upstream" samples constitute a background concentration for HRS purposes. Therefore an observed release can not be established. Similarly, the drainage ditch water is not considered part of the surface water pathway due to the fact that it is an intermittent water body. A release of contaminants

to surface water is suspected because the ditch water drains into Burt Creek, which is identified as an HRS-eligible surface water body. The creek is located approximately 1,000 feet west of the site.

Ref. Nos. 4, pp. 21 through 23, 46, 129 through 142, 223, 225 through 227, 229, 230, 232, 479, 480; 8, pp. 6, 7, 16 through 42; 9; 26, pp. 5.

11. Identify the nearest down slope surface water. If possible, include a description of possible surface drainage patterns from the site.

The nearest down slope surface water is Burt Creek. The creek is located approximately 1,000 feet west of the site, and flows in a northerly direction for approximately 0.75 miles before it discharges into the Raritan River. The Raritan River flows eastward approximately 4.25 miles into the Raritan Bay, which in turn discharges to the Sandy Hook and Lower New York Bays. A drainage ditch located on the site property drains into Burt Creek.

Ref. Nos. 4, p. 199; 12; 38.

12. What is the distance in feet to the nearest down slope surface water? Measure the distance along a course that runoff can be expected to follow.

The nearest down slope surface water is Burt Creek. It is located approximately 1,000 feet west of the site. An on-site drainage ditch, located on the northern portion of the property, drains into Burt Creek.

Ref. Nos. 12; 38.

13. Identify all surface water body types within 15 downstream miles.

<u>Name</u>	<u>Water Body Type</u>	<u>Flow (cfs)</u>	<u>Saline/Fresh/Brackish</u>
Burt Creek	Minimal Stream	<10	Brackish
Raritan River	Large River	>1,000	Brackish
*Raritan Bay	Coastal Tidal	N/A	Saline

*The Raritan Bay Complex includes the westernmost portions of the Lower New York and Sandy Hook Bays, both of which are coastal tidal surface water bodies.

Ref. Nos. 21; 28, p. 6; 33; 38; 40; 41.

14. Determine the 2 yr, 24 hr rainfall (inches) for the site.

The 2-yr, 24-hour rainfall in the area of the site is approximately 3.5 inches.

Ref. No. 32.

15. Determine size of the drainage area (acres) for sources at the site.

The drainage area for sources at the Essex site is estimated to be 20 acres.

Ref. Nos. 35; 37.

16. Describe the predominant soil group in the drainage area.

Although the soils are described as urban land (e.g., composed of areas that are more than 80 percent buildings or paved parking lots), the soils in the vicinity of the site are described generally as unconsolidated or poorly consolidated sands and clays. These soils are moderately fine-textured with low infiltration rates.

Ref. Nos. 4, p. 198; 16; 28, p. 5.

17. Determine the type of floodplain that the site is located within.

The site is located within an area of minimal flooding.

Ref. No. 20.

18. Identify drinking water intakes in surface waters within 15 miles downstream of the point of surface water entry. For each intake identify: the name of the surface water body in which the intake is located, the distance in miles from the point of surface water entry, population served, and stream flow at the intake location.

There are no drinking water intakes in surface waters within 15 miles downstream of the probable point of entry (PPE).

Ref. No. 29.

19. Identify fisheries that exist within 15 miles downstream of the point of surface water entry. For each fishery specify the following information:

<u>Fishery Name</u>	<u>Water Body Type</u>	<u>Flow (cfs)</u>	<u>Saline/Fresh/Brackish</u>
Raritan River	Large River	>1,000	Brackish
Raritan Bay Complex	Coastal Tidal	N/A	Saline

Ref. Nos. 21; 28, p. 6; 33; 38; 40; 41.

20. Identify surface water sensitive environments that exist within 15 miles of the point of surface water entry.

<u>Environment</u>	<u>Water Body Type</u>	<u>Flow (cfs)</u>	<u>Wetland Frontage (mi)</u>
Burt Creek	Minimal Stream	<10	1.2
Raritan River	Large River	>1,000	5.6
Raritan Bay Complex	Coastal Tidal	N/A	2.0
*State and Federal-listed			
Endangered Species (1)			
(<i>Falco peregrinus</i> - Perigrine Falcon)		N/A	N/A
*State-listed Endangered or Threatened			
Species (8)			
(<i>Circus cyaneus</i> - Northern Harrier)		N/A	N/A
(<i>Clemmys muhlenbergii</i> - Bog Turtle)		N/A	N/A
(<i>Hyla andersonii</i> - Pine Barrens Treefrog)		N/A	N/A
(<i>Nyctanassa violacea</i> - Yellow-Crowned Night Heron)		N/A	N/A
(<i>Podilymbus podiceps</i> - Pied-Billed Grebe)		N/A	N/A
(<i>Pycnanthemum torrei</i> - Torrey's Mountain Mint)		N/A	N/A
(<i>Triglochin maritimum</i> - Sea-Side Arrow-Grass)		N/A	N/A
(<i>Verbena simplex</i> - Narrow-Leaved Vervain)		N/A	N/A

*The New Jersey Natural Heritage Program Database recorded these species in the general vicinity of the site. The exact locations of these documented occurrences are unknown; for HRS purposes, the locations are assumed to be located within 15 miles of the PPE.

Ref. Nos. 28, p. 6; 30; 36; 38; 40; 41.

21. If a release to surface water is observed or suspected, identify any intakes, fisheries, and sensitive environments from question Nos. 18-20 that are or may be actually contaminated by hazardous substance(s) attributed to an observed release of from the site.

Intake: N/A

Fishery/Sensitive Environment:

It is likely that fisheries or sensitive environments would be contaminated by hazardous substances attributed to a suspected release from the site. Refer to Question No. 10 for a description of likelihood of release.

Ref. Nos. 12; 20; 30; 36; 38.

- 22. Identify whether the surface water is used for any of the following purposes, such as: irrigation (5 acre minimum) of commercial food or commercial forage crops, watering of commercial livestock, commercial food preparation, recreation, potential drinking water supply.**

Surface water is known to be used as a resource within 15 miles downstream of the site. The Raritan River and Sandy Hook Bay are classified "SE1" by the NJDEP. In all "SE1" waters, the designated uses include primary and secondary contact recreation. The Raritan Bay is classified as "FW2-NT/SE1". In all "FW2-NT" waters, the designated uses include primary and secondary contact recreation, and industrial and agricultural water supply. The Lower New York Bay is classified as "SB" by the New York State Department of Environmental Conservation (NYDEC). In all "SB" water, the designated uses include primary and secondary contact recreation and fishing. These waters are also designated suitable for fish propagation and survival.

Ref. Nos. 21; 38; 40; 41.

SOIL EXPOSURE PATHWAY

- 23. Determine the number of people that occupy residences or attend school or day care on or within 200 feet of observed contamination.**

There are no residences, schools, or day-care centers on or within 200 feet of observed contamination.

Ref. Nos. 12; 37.

- 24. Determine the number of people that regularly work on or within 200 feet of observed contamination.**

There are approximately 51 people that regularly work on or within 200 feet of observed contamination. Approximately 38 people are employed by Canfield Technologies and approximated 13 people are employed by Chemo Dynamics.

Ref. No. 12, pp. 1, 5, 6.

- 25. Identify terrestrial sensitive environments on or within 200 feet of observed contamination.**

There are no terrestrial sensitive environments on or within 200 feet of observed contamination.

Ref. Nos. 12; 36.

- 26. Identify whether there are any of the following resource uses, such as commercial agriculture, silviculture, livestock production or grazing within an area of observed or suspected soil contamination.**

The site is located within an industrialized area. The site is not known to be utilized as a resource for commercial agriculture, silviculture, livestock production or grazing.

Ref. No. 12.

AIR PATHWAY

- 27. Describe the likelihood of release of hazardous substances to air as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them the site. For observed release, define the supporting analytical evidence and relationship to background.**

No records of air sampling at the facility were found during a review of the background information. However, on several occasions smoke emissions were observed coming from the facility. On 21 October 1977, smoke emissions from a hot-melt storage tank heater were observed during an inspection conducted by the Central Jersey Regional Air Pollution Control Agency. As a result, an NOV was issued to Essex. On 10 December 1979, excessive black smoke emissions were observed coming from Cleaver Brooks boiler stack. Essex received a second NOV for this incident. Smoke emissions were again observed coming from the hot-melt storage tank heater on 23 March 1980; Essex was issued an NOV. Essex ceased site operations circa 1997.

During an on-site reconnaissance performed by Region II START on 8 November 1999, flame ionization detector (FID) readings were taken continuously. No readings above background were observed.

Ref. Nos. 4 pp. 12, 406 through 408; 7; 12, p. 1, 5.

28. Determine populations that reside within 4 miles of the site.

<u>Distance</u>	<u>Population</u>
On site	51 (estimated number of workers)
>0 - ¼ mi	216
>¼ - ½ mi	1,377
>½ - 1 mi	6,020
>1 - 2 mi	23,020
>2 - 3 mi	21,270
>3 - 4 mi	61,420

The total population that resides within a 4-mile radius of the site is 113,374.

Ref. Nos. 12, p. 1, 5, 6; 15.

29. Identify sensitive environments, including wetlands and associated wetlands acreage, within 4 miles of the site.

<u>Distance</u>	<u>Wetlands Acreage</u>	<u>Sensitive Environments</u>
0 - ¼ mi	2.5	None identified.
>¼ - ½ mi	11	None identified.
>½ - 1 mi	180	None identified.
>1 - 2 mi	380	None identified.
>2 - 3 mi	1310	None identified.
>3 - 4 mi	1550	<p>**State and Federal-listed Endangered Species (1) (<i>Falco peregrinus</i> - Peregrine Falcon)</p> <p>**State-listed Endangered or Threatened Species (8) (<i>Circus cyaneus</i> - Northern Harrier) (<i>Clemmys muhlenbergii</i> - Bog Turtle) (<i>Hyla andersonii</i> - Pine Barrens Treefrog) (<i>Nyctanassa violacea</i> - Yellow-Crowned Night Heron) (<i>Podilymbus podiceps</i> - Pied-Billed Grebe) (<i>Pycnanthemum torrei</i> - Torrey's Mountain Mint) (<i>Triglochin maritimum</i> - Sea-Side Arrow-Grass) (<i>Verbena simplex</i> - Narrow-Leaved Vervain)</p>

****The New Jersey Natural Heritage Program Database recorded these species in the general vicinity of the site. The exact locations of these documented occurrences are unknown; for HRS purposes, they were evaluated as if they were found within the 3 to 4 mile distance ring.**

Ref. Nos. 30; 36.

- 30. If a release to air is observed or suspected, determine the number of people that reside or are suspected to reside within the area of air contamination from the release.**

There are no persons residing within the area of the suspected air contamination from the release. A release to air is not currently observed nor suspected; refer to Question No. 27 for a description of likelihood of release.

- 31. If a release to air is observed or suspected, identify any sensitive environments, listed in question No. 29, that are or may be located within the area of air contamination from the release.**

A release to air is not currently observed nor suspected; refer to Question No. 27 for a description of likelihood of release.

ATTACHMENT 1

PHOTOGRAPH LOG

**ESSEX CHEMICAL CORP.
SAYREVILLE, MIDDLESEX COUNTY, NEW JERSEY**

ON-SITE RECONNAISSANCE: 8 NOVEMBER 1999

ESSEX CHEMICAL CORP.
8 NOVEMBER 1999
PHOTOS TAKEN BY: KELLEY CURRAN

Photo ID Number	Description	Time
ECC - 1	S - View of bay #1 formerly used by Essex; fenced area with sign reading "Dirty Solvent Drums Only" located at southern end of property.	1320 hours
ECC - 2	S - View of bay #2 & #3 formerly used by Essex; fenced area located at southern end of property with signs reading "Hazardous Dump Material", and "Non-Hazardous Dump Material" respectively.	1322 hours
ECC - 3	SW - Aboveground storage tank farm formerly used by Essex located at southern end of property.	1330 hours
ECC - 4	S - Aboveground storage tank farm formerly used by Essex located at southern end of property.	1332 hours
ECC - 5	SW - Aboveground storage tank farm formerly used by Essex located at southern end of property.	1334 hours
ECC - 6	N - View of southern end of former Essex manufacturing facility. Two storage tanks, formerly used by Essex, are visible in the background.	1340 hours
ECC - 7	NE - View along eastern perimeter of property, showing cylinder storage containing oxygen, acetylene, propane, and empty containers.	1345 hours
ECC - 8	SE - View along eastern perimeter of property, showing pallets, drums, and disposal bin.	1346 hours

Photo ID Number	Description	Time
ECC - 9	NE - View along eastern perimeter of property. Pallets and drums are visible.	1347 hours
ECC - 10	NE - View along eastern perimeter of property.	1348 hours
ECC - 11	NE - Northeast corner of property containing drum storage area. Drums contain raw materials including: acetate, monoethanolamine, ethanol, deionized water, and isopropyl alcohol. Some empty drums are staged for disposal.	1349 hours
ECC - 12	NW - View of northern end of property, the site of the former underground storage tank farm. Area was remediated and backfilled.	1350 hours
ECC - 13	SW - View of eastern side of manufacturing facility.	1352 hours
ECC - 14	W - View of northern portion of property. Three monitoring wells are visible.	1354 hours
ECC - 15	NW - View of northern portion of property. Drainage ditch and monitoring well visible.	1356 hours
ECC - 16	NE - View of drainage ditch.	1358 hours
ECC - 17	E - View of side of Chemo Dynamics R&D Center located on southern portion of former Essex Chemical property.	1425 hours
ECC - 18	S - View of eastern side of Chemo Dynamics property and building.	1430 hours
ECC - 19	SE - View of fenced flammable storage area containing Chemo Dynamics-owned material.	1435 hours
ECC - 20	N - View of southern end of former Essex laboratory facility, showing contained area with cylinders.	1440 hours
ECC - 21	NE - View of front side of former Essex laboratory facility.	1450 hours

Note: N - represents the view to the north; S - the view to the south;
E - the view to the east; and W - the view to the west.



ECC - 1

S - View of bay #1 formerly used by Essex; fenced area with sign reading "Dirty Solvent Drums Only" located at southern end of property.

1320 hours



ECC - 2

S - View of bay #2 & #3 formerly used by Essex; fenced area located at southern end of property with signs reading "Hazardous Dump Material" and "Non-Hazardous Dump Material", respectively.

1322 hours



ECC - 3

SW - Aboveground storage tank farm formerly used by Essex located at southern end of property.

1330 hours



ECC - 4

S - Aboveground storage tank farm formerly used by Essex located at southern end of property.

1332 hours



ECC - 5 SW - Aboveground storage tank farm formerly used by Essex located at southern end of property.

1334 hours



ECC - 6 N - View of southern end of former Essex manufacturing facility. Two storage tanks, formerly used by Essex, are visible in the background.

1340 hours



ECC - 7

NE - View along eastern perimeter of property, showing cylinder storage containing oxygen, acetylene, propane, and empty containers.

1345 hours



ECC - 8

SE - View along eastern perimeter of property, showing pallets, drums, and disposal bin.

1346 hours



ECC - 9

NE - View along eastern perimeter of property. Pallets and drums are visible.

1347 hours



ECC - 10

NE -View along eastern perimeter of property.

1348 hours



ECC - 11 NE - Northeast corner of property containing drum storage area. Drums contain raw materials including: acetate, monoethanolamine, ethanol, deionized water, and isopropyl alcohol. Some empty drums are staged for disposal.

1349 hours



ECC - 12 NW - View of northern end of property, the site of the former underground storage tank farm. Area was remediated and backfilled.

1350 hours



ECC - 13 SW - View of eastern side of manufacturing facility.

1352 hours



ECC - 14 W - View of northern portion of property. Three monitoring wells are visible.

1354 hours



ECC - 15 NW - View of northern portion of property. Drainage ditch and monitoring well are visible. 1356 hours



ECC - 16 NE - View of drainage ditch. 1358 hours



ECC - 17 E - View of side of Chemo Dynamics R&D Center located on southern portion of former Essex Chemical property. 1425 hours



ECC - 18 S - View of eastern side of Chemo Dynamics property and building. 1430 hours



ECC - 19

SE - View of fenced flammable storage area containing Chemo Dynamics-owned material.

1435 hours



ECC - 20

N - View of southern end of former Essex laboratory facility, showing contained area with cylinders.

1440 hours



ECC - 21

NE - View of front side of former Essex laboratory facility.

1450 hours

ATTACHMENT 2

REFERENCES

REFERENCES

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2. U.S. Bureau of the Census Congressional District Atlas, 103rd Congress of the United States. U.S. Government Printing Office, Washington, D.C., February 1983.
3. Real Property Tax List: Taxing District No. 19, Sayreville Boro, 1999, and Tax Map 87, Borough of Sayreville, Middlesex County, New Jersey, August, 1989.
4. Site Inspection Report, Essex Chemical Corporation (aka: Essex Specialty Products), Sayreville Borough, Middlesex County, prepared by NJDEP, 24 October 1991.
5. Remedial Activities Summary and Natural Remediation Proposal, Essex Specialty Products, Inc., prepared by Woodward-Clyde Consultants, November 1994.
6. Letter from Robert G. Gaibrois, Project Manager, Woodward-Clyde Consultants, to Grace Jacob, ISRA Case Manager, NJDEP, Subject: Abandonment of On-site Monitoring Wells, 22 May 1997; with attachments.
7. Letter from Wayne C. Howitz, Assistant Director, Industrial Site Evaluation Element, NJDEP, to Ben Baker, The Dow Chemical Company, Subject: No Further Action Approval, 3 October 1997.
8. Summary of Sampling and Analytical Testing Program, October 24, 1996 Sampling Event, prepared by Woodward-Clyde Consultants, December 1996.
9. Essex Chemical Corporation Memorandum, Subject: Sayreville DOP Leak, 20 July 1978.
10. U.S. Environmental Protection Agency, General Information and Hazardous Waste Permit Application, 18 November 1980.
11. Letter from Diane L. Driscoll, Safety/Compliance Administrator, Essex Chemical Corporation, to U.S. EPA, Chief, Permits Administration Branch, Subject: Notification to Withdrawal Application for TSDF Status, 26 January 1982.
12. Field Logbook No. START-02-382, Essex Chemical, Off-site reconnaissance, Region II START, 21 May 1999, and On-site reconnaissance, Region II START, 8 November 1999.

13. Letter from Richard A. Kantor, Section Chief, Raritan Region, Bureau of Inland Regulation, NJDEP, to Robert Gaibrois, Woodward-Clyde Consultants, Subject: Authorization for Freshwater Wetlands Statewide General Permit, Waiver of Transition Area for Access, and Mitigation Plan Approval, 7 February 1991.
14. Housing Units and Household Population, New Jersey, Counties and Municipalities, 1990, New Jersey State Data Center, April 1991.
15. Letter from Frost Associates, to Diane Minsavage, Region II START, Subject: Sayreville, NJ Site, 27 November 1998.
16. Soil Survey of Middlesex County, New Jersey. United States Department of Agriculture, Soil Conservation Service, 1978.
17. Zapacza, O.S., Hydrogeologic Framework of the New Jersey Coastal Plain, U.S. Geological Survey Professional Paper 1404-B, 1989.
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19. Reports of Inspection, NJDEP Bureau of Environmental Evaluation and Cleanup Responsibility Assessment, 18 October 1990, 3 December 1990, 17 May 1991, and 25 June 1992.
20. Flood Insurance Rate Map for the Borough of Sayreville, New Jersey, Middlesex County, Community-Panel Number 340276 0002 C, Revised: 16 January 1987.
21. Surface Water Quality Standards, N.J.A.C. 7:9B, NJDEP, Office of Environmental Planning, April 1998.
22. Response to NJDEP Deficiency Letter (7/25/89) and Report of Inspection (5/22/89), prepared by Environmental Resources Management, Inc., 22 September 1989.
23. Phase I Sampling Plan Results and Phase II Sampling Proposal, Essex Specialty Products, Inc., prepared by Environmental Resources Management, Inc., May 1990.
24. Summary Report, Phase I Groundwater Results, Essex Specialty Products, Inc., prepared by Woodward-Clyde Consultants, July 1992.
25. Letter from Martin M. Sklaver, Project Engineer, WCC, to William J. Hadsell, Jr., NJDEP, Subject: Progress Report No. 14, December 1991, 13 January 1992.
26. Letter from Peter A. Reynolds, Assistant Project Scientist, WCC, to Grace Jacob, NJDEP, Subject: ISRA Case No. 88904, 2 August 1995; with attachments.

27. Hydrogeologic Framework of the Potomac-Raritan-Magothy Aquifer System, Northern Coastal Plain of New Jersey. U.S. Geological Survey, Water-Resources Investigations Report 90-4016, 1991.
28. Federal Register, 40 CFR, Part 300, Hazard Ranking System; Final Rule, Volume 55, No. 241, Environmental Protection Agency, 14 December 1990.
29. Project Note: From K. Curran, Region II START, to Essex Chemical Corp. site file, Subject: Groundwater Population (Use Summary), 9 December 1999; with attachments.
30. Project Note: From K. Curran, Region II START, to Essex Chemical Corp. site file, Subject: Essex Chemical Corp. Wetlands Calculations, 10 December 1999; with attachment.
31. Telecon Note: Conversation between Diane Minsavage, Region II START, and Steve Spayd, New Jersey Geological Survey. Subject: New Jersey Wellhead Protection Areas, 3 June 1999.
32. Hershfield, David M. Rainfall Frequency Atlas of the United States for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years, U.S. Department of Commerce, Weather Bureau, Technical Paper No. 40.
33. Water Resources Data, New Jersey, Water Year 1996, Volume 1. Surface-Water Data, U.S. Geological Survey Water-Data Report NJ-96-1, 1997.
34. Water Resources Data, New Jersey, Water Year 1996, Volume 2. Ground-Water Data, U.S. Geological Survey Water-Data Report NJ-96-2, 1997.
35. Project Note: From K Curran, Region II START, to Essex Chemical Corp. site file, Subject: Essex Chemical Corp. Site Drainage Area, 9 December 1999.
36. Project Note: From K Curran, Region II START, to Essex Chemical Corp. site file, Subject: Sensitive Environments, 29 December 1999; with attachment.
37. Four-Mile Radius Map for Essex Chemical Corp. site, based on U.S. Department of the Interior, Geological Survey Topographic Maps, 7.5-minute series. Quadrangles for "South Amboy, NJ-NY", 1954 (photorevised 1981), "Perth Amboy, NJ-NY", 1956 (photorevised 1981), "New Brunswick, NJ", 1954 (photorevised 1981), "Plainfield, NJ", 1955 (photorevised 1981), and "Keyport, NJ-NY", 1954 (photorevised 1970, photoinspected 1977).
38. Fifteen-Mile Surface Water Pathway Map for Essex Chemical Corporation site, based on U.S. Department of the Interior, Geological Survey Topographic Maps, 7.5-minute series. Quadrangles for "South Amboy, NJ-NY", 1954 (photorevised 1981), "Perth Amboy, NJ-NY", 1956 (photorevised 1981), "Arthur Kill, NY-NJ", 1966 (photorevised 1981), "Keyport, NJ-NY", 1954 (photorevised 1970, photoinspected 1977), "Sandy Hook, NJ-NY", 1954 (photorevised 1981), and "The Narrows, NY-NJ", 1966 (photorevised 1981).

39. Project Note: From K. Curran, Region II START, to Essex Chemical Corp. site file, Subject: Area Calculations of Former Soil Excavation, 15 December 1999; with attachments.
40. State of New York, Official Compilation of Codes, Rules and Regulations, Title 6, Conservation, Part 890, Department of State, 1 January 1995.
41. Water Quality Regulations, Surface Water and Groundwater Classifications and Standards, New York State, Codes, Rules and Regulations, Title 6, Chapter X, Parts 700-705, New York State Department of Environmental Conservation, 2 August 1991.

REFERENCE NO. 1

AD-HOC
 U.S. EPA Superfund Program
 Region II
 List-4 Site Alias Location Listing

State: NJ

Site Name EPA ID	Alias Name/ID Alias Street Alias City/ County Name	Alias ID	County Code	Zip Code	Federal Facility Flag	Cong. Dist.
ENGELHARD INDUSTRIES DIVISIK NJD006973234	ENGELHARD INDUSTRIES DIVISIK MIDDLESEX MIDDLESEX MINERALS & CHEMICAL DIV. (NJC	101	023		N	06
	MIDDLESEX MIDDLESEX	201				
ENGLE DOSTDYK INC. NJD003775657	ENGLE DOSTDYK INC. BERGEN BERGEN	101	003		N	09
ENGLERT INC. NJD001911833	ENGLERT INC. (NJD981075948) MIDDLESEX	101	023		N	06
EQUITABLE METER CO NJD980530638	EQUITABLE METER CO 100 HAMILTON AVE HOPEWELL TOWNS MERCER	101	021	08560	N	13
ERDA- NEW BRUNSWICK LAB (NC NJ9890090013	ERDA- NEW BRUNSWICK LAB (NC MIDDLESEX MIDDLESEX	101	023		Y	15
ERLTON LF NJD980529028	EARLTON LANDFILL MCGILL DRIVE CHERRY HILL TOW CAMDEN	101	007	08002	N	06
ESSEX CHEMICAL CORP. NJD002568715	ESSEX CHEMICAL CORP. MIDDLESEX MIDDLESEX	101	023		N	06
ESSEX CHEMICAL CORPORATIOI NJD070418678	ESSEX CHEMICAL CORPORATIOI MIDDLESEX MIDDLESEX	101	023		N	07
ESSEX CHEMICAL PLANT SITE NJD980769723	ESSEX CHEMICAL CORPORATIOI GLOUCESTER	501	015		N	01
	ESSEX CHEMICAL SLF 100 THOMAS LANE PAULSBORO GLOUCESTER	101		08066	N	01
	OLIN	601			N	01
	GLOUCESTER					
	PLANT SITE	301				
	GLOUCESTER					
EVERSEAL MFG. CO. NJD002152460	EVERSEAL MFG. CO. ESSEX ESSEX	101	013		N	10
EVOR PHILLIPS LEASING NJD980654222	EPL INDUSTRIES MIDDLESEX	201	023		N	06
	EVOR PHILLIPS LEASING	401				
	MIDDLE SEX MIDDLESEX					

Run Date: 8/5/81
 Sequence: State, Site Name
 Report name: L8I_alpha

HOC
 U.S. EPA Superfund Program
 Region II
 List-8I Site/Action Listing

Page 1
 Internal Use Only

EPA ID	Site Name Address City Zip County Name\Code	Cong Dist	NFRAP Flag	Oprble Unit	Action Type	Action Lead	Action Qualif	Actual Start Date	Actual Compl Date
NJD980529028	ERTON LF NEW HAMPSHIRE AVENUE CHERRY HILL 08002 CAMDEN 007	06	NFA						
				00	DS 001	F			05/01/81
					PA 001	S	H	09/01/84	09/01/84
					SH 001	S	N	01/11/94	05/19/94
					SI 001	S	N	03/28/88	03/31/88
NJD981557887	ESSENGEE INVESTORS DU BOIS STREET EAST RUTHERFORD 07073 BERGEN 003	09	NFA						
				00	DS 001	S			09/18/86
					PA 001	S	L	09/18/86	09/29/86
					SH 001	F	N	01/23/93	09/30/93
					SI 001	F	N	01/01/90	03/30/90
NJD002568715	ESSEX CHEMICAL CORP. ONE CROSSMAN ROAD SOUTH SAYREVILLE 08872 MIDDLESEX 023	06							
				00	DS 001	F			06/06/89
					PA 001	F	D		09/18/89
					SH 001	F		09/03/98	
					SI 001	S	H	07/01/91	09/24/91
NJD070418678	ESSEX CHEMICAL CORPORATION BLACK HORSE LANE MONMOUTH JUN 08852 MIDDLESEX 023	07							
				00	DS 001	F			06/06/89
					PA 001	F	D		09/18/89
NJD980769723	ESSEX CHEMICAL PLANT SITE HENRY AVENUE PAULSBORO 08066 GLOUCESTER 015	01	NFA						
				00	DS 001	S			11/29/79
					PA 001	S	L	09/01/84	09/01/84
					SH 001	F	N		03/29/93
					SI 001	F	N	08/01/85	09/01/85

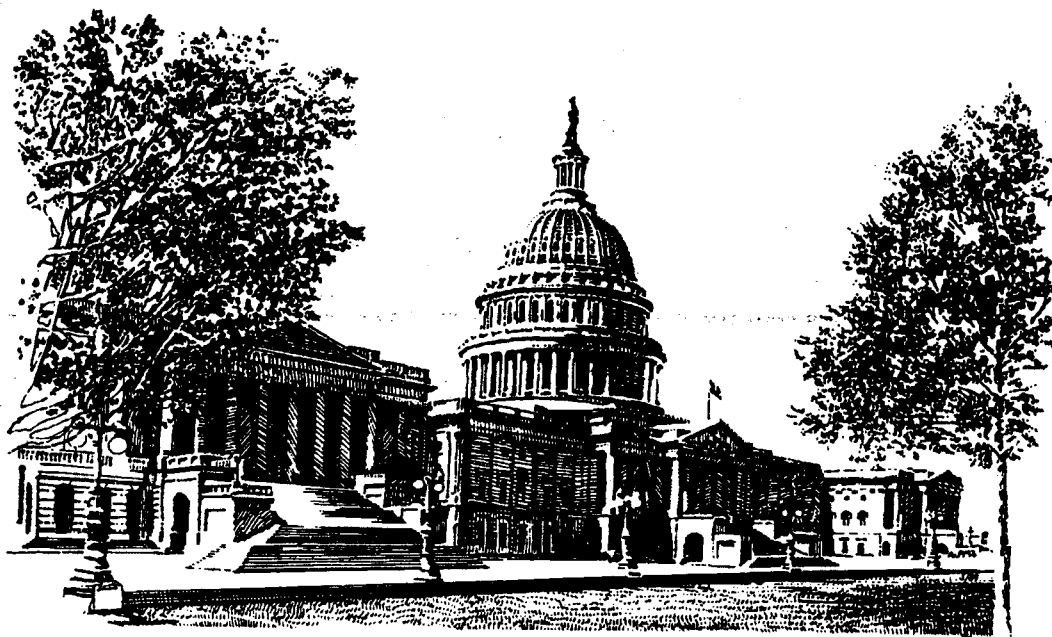
REFERENCE NO. 2

Volume 2
New Jersey - Wyoming,
American Samoa, Guam, Puerto Rico,
and Virgin Islands of the United States

Congressional District Atlas

103rd Congress of
the United States

Issued February 1993



U.S. Department of Commerce
Ronald H. Brown, Secretary
John Rollwagen, Deputy Secretary
Economics and Statistics Administration
Jeffrey Mayer, Acting Under Secretary
BUREAU OF THE CENSUS
Harry A. Scarr, Acting Director

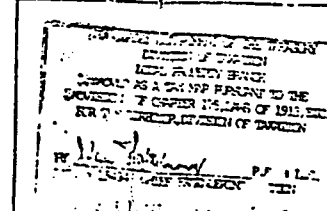
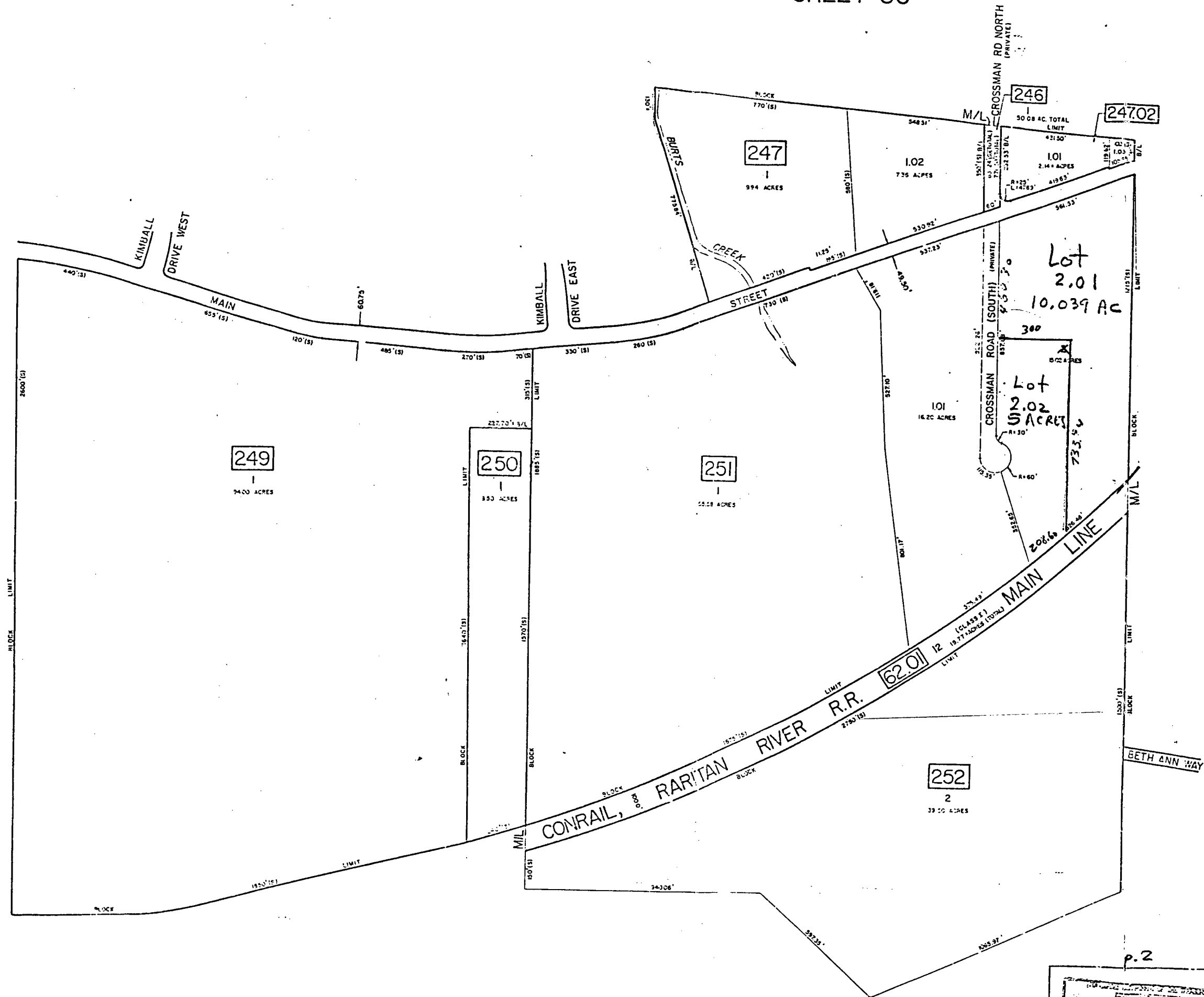
Table 1. Places—Con.

Place	County	Congressional district	Place	County	Congressional district
Kenilworth borough	Union	7	North Wildwood city	Cape May	2
Keyport borough	Monmouth	6	Nonwood borough	Bergen	5
Kingston CDP	Middlesex	12	Nutley CDP	Essex	8
Kinnelon borough	Morris	11	Oakhurst CDP	Monmouth	12
Lakeland borough	Ocean	4	Oakland borough	Bergen	5
Lake Mohawk CDP	Sussex	11	Oaklyn borough	Camden	1
Lake Telemark CDP	Morris	11	Oak Valley CDP	Gloucester	1
Lakewood CDP	Ocean	4	Ocean Acres CDP	Ocean	3
Lambertville city	Hunterdon	12	Ocean City city	Cape May	2
Laurel Springs borough	Camden	1	Ocean Gate borough	Ocean	3
Laurence Harbor CDP	Middlesex	6	Ocean Grove CDP	Monmouth	6
Lavallete borough	Ocean	3	Oceanport borough	Monmouth	12
Lawnside borough	Camden	1	Ogdensburg borough	Sussex	11
Lawrenceville CDP	Mercer	12	Old Bridge CDP	Middlesex	6
Lebanon borough	Hunterdon	12	Old Tappan borough	Bergen	5
Letsure Knoll CDP	Ocean	4	Olivet CDP	Salem	2
Letsuretown CDP	Burlington	3	Oradell borough	Bergen	5
Letsure Village CDP	Ocean	4	Orange CDP	Essex	10
Letsure Village East CDP	Ocean	4	Oxford CDP	Warren	5
Letsure Village West-Pine Lake Park CDP	Ocean	4	Palesades Park borough	Bergen	9
Leonardo CDP	Monmouth	6	Palmyra borough	Burlington	1
Leonia borough	Bergen	9	Paramus borough	Bergen	5
Lincoln Park borough	Morris	11	Park Ridge borough	Bergen	5
Lincoln CDP	Monmouth	12	Parapenny-Troy Hills Township CDP	Morris	11
Linden city	Union	7,10,13	Passaic city	Passaic	8
Lindenwood borough	Camden	1	Patterson city	Passaic	8
Linwood city	Atlantic	2	Paulsboro borough	Gloucester	1
Little Falls CDP	Passaic	8	Paspick and Gladstone borough	Somerset	12
Little Ferry borough	Bergen	8	Pemberton borough	Burlington	3
Little Silver borough	Monmouth	12	Pemberton Heights CDP	Burlington	3
Livingston CDP	Essex	7,11	Pennington borough	Mercer	12
Loch Arbour village	Monmouth	6	Pennsauken CDP	Camden	1
Lodi borough	Bergen	9	Penna Grove borough	Salem	2
Long Branch city	Monmouth	6	Pennsville CDP	Salem	2
Longport borough	Atlantic	2	Pequanock Township CDP	Morris	11
Long Valley CDP	Morris	11	Perth Amboy city	Middlesex	13
Lyndhurst CDP	Bergen	9	Phillipsburg town	Warren	5
McGuire AFB CDP	Burlington	3,4	Pine Beach borough	Ocean	3
Madison borough	Morris	11	Pine Hill borough	Camden	1
Madison Park CDP	Middlesex	6	Pine Ridge at Crestwood CDP	Ocean	4
Magnolia borough	Camden	1	Pine Valley borough	Camden	1
Manahawkin CDP	Ocean	3	Pitman borough	Gloucester	2
Manasquan borough	Monmouth	4	Plainfield city	Union	7
Mantoloking borough	Ocean	4	Pleasant Plains CDP	Ocean	3,4
Manville borough	Somerset	7	Pleasantville city	Atlantic	2
Maple Shade CDP	Burlington	1	Point Pleasant borough	Ocean	4
Maplewood CDP	Essex	7,8,10	Point Pleasant Beach borough	Ocean	4
Margate City city	Atlantic	2	Pomona CDP	Atlantic	2
Marlton CDP	Burlington	3	Pompton Lakes borough	Passaic	8
Martinez borough	Monmouth	6	Port Monmouth CDP	Monmouth	6
Mays Landing CDP	Atlantic	2	Port Norris CDP	Cumberland	2
Maywood borough	Bergen	9	Port Reading CDP	Middlesex	7,13
Medford Lakes borough	Burlington	3	Port Republic city	Atlantic	2
Mendham borough	Morris	11	Presidential Lakes Estates CDP	Burlington	3
Merensville-Hamilton Square CDP	Mercer	4	Princeton borough	Mercer	12
Merchantville borough	Camden	3	Princeton Junction CDP	Mercer	12
Metuchen borough	Middlesex	6	Princeton North CDP	Mercer	12
Middlesex borough	Middlesex	7	Prospect Park borough	Passaic	8
Midland Park borough	Bergen	5	Rahway city	Union	10
Millford borough	Hunterdon	12	Ramblewood CDP	Burlington	3
Millburn CDP	Essex	7,11	Ramsey borough	Bergen	5
Millstone borough	Somerset	7	Raritan borough	Somerset	11
Milltown borough	Middlesex	6	Red Bank borough	Monmouth	6
Millville city	Cumberland	2	Ridgefield borough	Bergen	9
Monmouth Beach borough	Monmouth	6	Ridgefield Park village	Bergen	9
Monmouth Junction CDP	Middlesex	12	Ridgewood village	Bergen	5
Montclair CDP	Essex	8,10	Ringwood borough	Passaic	5
Montvale borough	Bergen	5	Rio Grande CDP	Cape May	2
Moonsachie borough	Bergen	9	Riverdale borough	Morris	11
Moorestown-Lenola CDP	Burlington	3	River Edge borough	Burlington	9
Morris Plains borough	Morris	11	Riverside CDP	Burlington	3
Mountaintown town	Morris	11	Riverton borough	Burlington	1
Mountain Lakes borough	Morris	11	River Vale CDP	Bergen	5
Mountainside borough	Union	7	Robertville CDP	Monmouth	12
Mount Arlington borough	Morris	11	Rochelle Park CDP	Bergen	5,9
Mount Ephraim borough	Camden	1	Rockaway borough	Morris	11
Mount Holly CDP	Burlington	3	Rockleigh borough	Bergen	5
Mullica Hill CDP	Gloucester	2	Rocky Hill borough	Somerset	12
Mystic Island CDP	Ocean	3	Roosevelt borough	Monmouth	4
National Park borough	Gloucester	1	Roseland borough	Essex	11
Neptune City borough	Monmouth	6	Roselle borough	Union	10
Netcong borough	Morris	11	Roselle Park borough	Union	7
Newark city	Essex	10,13	Rosenhay CDP	Cumberland	2
New Brunswick city	Middlesex	6	Rosemoor CDP	Middlesex	12
New Egypt CDP	Ocean	4	Rumson borough	Monmouth	12
Newfield borough	Gloucester	2	Runnemede borough	Camden	1
New Milford borough	Bergen	5	Rutherford borough	Bergen	9
New Providence borough	Union	7	Saddle Brook CDP	Bergen	9
Newtown town	Sussex	5	Saddle River borough	Bergen	5
North Arlington borough	Bergen	9	Salem city	Salem	2
North Beach Haven CDP	Ocean	3	Sayreville borough	Middlesex	6
North Bergen CDP	Hudson	9,13	Scotch Plains CDP	Union	7
North Brunswick Township CDP	Middlesex	6	Sea Bright borough	Monmouth	6
North Caldwell CDP	Essex	11	Seabrook Farms CDP	Cumberland	2
North Cape May CDP	Cape May	2	Sea Girt borough	Monmouth	6
Northfield city	Atlantic	2	Sea Isle City city	Cape May	2
North Haledon borough	Passaic	5,8	Seaside Heights borough	Ocean	3
North Middletown CDP	Monmouth	6	Seaside Park borough	Ocean	3
North Plainfield borough	Somerset	7	Secaucus town	Hudson	9
Northvale borough	Bergen	5	Sewaren CDP	Middlesex	13

P. 2

REFERENCE NO. 3

2 BLOCK NO. LOT NO. ADDITIONAL LOTS COUNT NO.	3 LAND DIMENSIONS Building Description ADDITIONAL LOTS ACREAGE	4 OWNER'S NAME ADDRESS CITY STATE PROPERTY LOCATION ZONING	5 LAND IMPROVEMENTS TOTAL VALUE	6 BILLING CODE ZIP CODE Tax Map Page	7 CODE
248.06 41.04 ✓	22X80 TOWNHOUSE .0404	2 MUSKUS, CARYN 4 KARWATT COURT SAYREVILLE, NJ 4 KARWATT COURT	30000 73400 103400	04395 08872	
248.06 41.05 ✓	22X80 TOWNHOUSE .0404	2 LINDER, NEAL A. & KATHLEEN 5 KARWATT COURT SAYREVILLE, NJ 5 KARWATT COURT	30000 73200 103200	00597 08872	
248.06 41.06 ✓	22X80 TOWNHOUSE .0404	2 COLANSANTI, DENISE M. 6 KARWATT COURT SAYREVILLE, NJ 6 KARWATT COURT	30000 76100 106100	01175 08872	
248.06 41.07 ✓	22X80 TOWNHOUSE .0404	2 BALBERCHAK, JOSEPH M. 7 KARWATT COURT SAYREVILLE, NJ 7 KARWATT COURT	30000 75200 105200	00672 08872	
248.06 41.08 ✓	27X80 TOWNHOUSE .0496	2 BORAWSKI, JOSEPH F. & JENNIFER-ANN 8 KARWATT COURT SAYREVILLE, NJ 8 KARWATT COURT	30000 89700 119700	08872 1175	
249 1 ✓	102.5 ACS B 250 L 1 102.5000	1 MOCCO, LORRAINE MUNNIA 345 TENTH STREET JERSEY CITY, NJ MAIN STREET	3459400 0 3459400	07302	
251 1 ✓	55.58 ACS 55.5800	1 MOCCO, LORRAINE MUNNIA 345 TENTH STREET JERSEY CITY, NJ 850 MAIN STREET	1875800 0 1875800	07302 M059	
251 1.01	16.2 ACS STEEL BLDG 16.2000	4B SAYTECH, INC. % ALBEMARLE CORP. 451 FLORIDA STREET BATON ROUGE, LA 880 MAIN STREET	592400 107600 700000	70801	
251 2.01	10.039 ACS 1 STY MASONRY 10.0390	4B CANFIELD PROPERTIES, LLC 1000 BRIGHTON STREET UNION, NJ <i>1 Crossman Rd Sayreville</i> 1 CROSSMAN ROAD SOUTH	552100 597900 1150000	07083 08872	
251 2.02	5 ACS 1 STY LAB 5.0000	4B ELLREN, LLC 3 CROSSMAN ROAD SOUTH SAYREVILLE, NJ 3 CROSSMAN ROAD SOUTH	275000 347800 622800	08872	
252 1	74.51 AC GREENACRES KENNEDY PARK B 368.10 L 1 74.5100	15C BOROUGH OF SAYREVILLE 167 MAIN STREET SAYREVILLE, NJ WASHINGTON ROAD	1887700 2028700 3916400	08872	
252 2	39.5 ACS 39.5000	1 MOCCO, LORRAINE MUNNIA 345 TENTH STREET JERSEY CITY, NJ WASHINGTON ROAD	395000 0 395000	07302 M059	
253.01 1.01	100X138 .3168	1 MOCCO, LORRAINE MUNNIA 345 TENTH STREET JERSEY CITY, NJ OFF LAKEVIEW DRIVE	5900 0 5900	07302	
254 1.01	22.94 ACS BRK APT BLDGS PT.OF DRIVE-1.25 ACS 22.9400	4C BROOKLAWN GARDENS, INC. 200 CENTRAL AVENUE MOUNTAINSIDE, NJ LAKEVIEW DR. SOLOOK DR	3100000 11497500 14597500	07092	
ALS			p.1		
			10405600		
			12938400		



REFERENCE NO. 4

Received:
Reviewed: 9/24/9.
Recommend: H
By: G. Ferreira

SITE INSPECTION

ESSEX CHEMICAL CORPORATION

(aka: ESSEX SPECIALTY PRODUCTS)

SAYREVILLE BOROUGH, MIDDLESEX COUNTY

EPA ID No.: NJD002568715

Volume I of II



New Jersey Department of Environmental Protection and Energy
Division of Responsible Party Site Remediation
Bureau of Site Assessment

ESSEX CHEMICAL CORPORATION
AKA: ESSEX SPECIALTY PRODUCTS, INC.
1 CROSSMAN ROAD SOUTH
SAYREVILLE BOROUGH, MIDDLESEX COUNTY, NEW JERSEY
EPA ID NO. NJD002568715

TABLE OF CONTENTS

NARRATIVE

MAPS

1. UNITED STATES GEOLOGICAL SURVEY (USGS) TOPOGRAPHIC MAP: SOUTH AMBOY QUADRANGLE
- 2A. SITE MAP
- 2B. SITE MAP
- 2C. SITE MAP
- 2D. SITE MAP (SEEP AREA)
- 2E. SITE MAP (WETLAND AREA)
- 3A. SAYREVILLE BOROUGH TAX MAP (1985)
- 3B. SAYREVILLE BOROUGH TAX MAP (1985)
4. MIDDLESEX COUNTY ROAD MAP (1987)
5. NEW JERSEY ATLAS BASE MAP - SHEETS 25, 26, 28 AND 29
6. NEW JERSEY ATLAS GEOLOGIC OVERLAY - SHEETS 25, 26, 28 AND 29
7. NEW JERSEY ATLAS WATER SUPPLY OVERLAY - SHEETS 25, 26, 28 AND 29
8. COMPUTER GENERATED WATER WITHDRAWAL POINTS MAP

ATTACHMENTS

- A. REAL ESTATE DATA INC. SHEETS; 1988
- B. SITE EVALUATION SUBMISSION: ESSEX SPECIALTY PRODUCTS INC. ECRA CASE NO. 88904; JANUARY 31, 1989
- C. LETTERS FROM McCARTER & ENGLISH TO NJDEP RE: ESSEX CHEMICAL CORP.; SEPTEMBER 12, 1988
- D. GENERAL INFORMATION SUBMISSION: ESSEX SPECIALTY PRODUCTS INC. ECRA CASE NO. 88904; SEPTEMBER 1988
- E. GENERAL INFORMATION SUBMISSION: ESSEX SPECIALTY PRODUCTS INC. ECRA CASE NO. 88898; SEPTEMBER 1988

- F. SITE EVALUATION SUBMISSION: ESSEX SPECIALTY PRODUCTS INC.; JULY 30, 1990
- G. NUS CORPORATION PRELIMINARY ASSESSMENT: ESSEX CHEMICAL CORP.; AUGUST 18, 1989
- H. NJDEP/BSA: PRELIMINARY SAMPLING ASSESSMENT; OCTOBER 15, 1991
- I. NJDEP/DHWM: INSPECTION REPORT; DECEMBER 9, 1983
- J. NJDEP/DHWM: INSPECTION REPORT; FEBRUARY 4, 1987
- K. LETTER FROM ESSEX SPECIALTY PRODUCTS TO NJDEP RE: TSD DELISTING REQUEST; MAY 26, 1983
- L. NJDEP AUGUST 25, 1977 INSPECTION REPORT; JANUARY 19, 1978
- M. NJDEP INSPECTION REPORT: WATER POLLUTION VIOLATIONS
- N. LETTER FROM ESSEX CHEMICAL TO USEPA RE: AUGUST 30, 1978 PHTHALATE SPILL; SEPTEMBER 6, 1978
- O. NJDEP MEMO RE: D.O.P. OVERFLOW AUGUST 29, 1978; SEPTEMBER 7, 1978
- P. ROY F. WESTON INC. SPCC INSPECTION; JANUARY 28, 1983
- Q. NJDEP MEMO RE: UST FARM REMOVAL; FEBRUARY 15, 1983
- R. LETTER FROM NJDEP/DWR TO ESSEX SPECIALTY PRODUCTS RE: COMPLIANCE EVALUATION INSPECTION; NOVEMBER 23, 1983
- S. NJDEP INCIDENT NOTIFICATION REPORT: POLYMER SPILL
- T. NJDEP/BEECRA INSPECTION; APRIL 29, 1986
- U. LETTER FROM NJDEP/DIVISION WASTE MANAGEMENT TO ESSEX RE: TSD DELISTING; AUGUST 18, 1983
- V. PHASE I ECRA SAMPLING PLAN RESULTS AND PHASE II SAMPLING PROPOSAL; MAY 1990
- W. NUS CORPORATION SITE INSPECTION REPORT: NL INDUSTRIES NALCON DIVISION GROUNDWATER ROUTE; MARCH 29, 1991
- X. MONITORING WELL CERTIFICATIONS
- Y. PUBLIC COMMUNITY WATER SUPPLY COMPLIANCE EVALUATION INSPECTIONS: SAYREVILLE BOROUGH, SOUTH AMBOY, PERTH AMBOY, SOUTH RIVER AND OLD BRIDGE
- Z. NEW JERSEY STATE WATER QUALITY INVENTORY REPORT; MAY 1988
- AA. STATE AND FEDERAL THREATENED AND ENDANGERED SPECIES: SOUTH AMBOY QUADRANGLE

- BB. ESSEX CHEMICAL CORP., NPDES PERMIT NJ0003093; JULY 31, 1975
- CC. ESSEX CHEMICAL CORP.: DESCRIPTION OF WATER USAGE; JUNE 17, 1974
- DD. LETTER FROM ESSEX CHEMICAL CORP., TO SAYTECH INC., RE: STORMWATER RUNOFF DISCHARGES; NOVEMBER 26, 1980
- EE. FRESH WATER WETLANDS PERMIT APPLICATION
- FF. CENTRAL JERSEY REGIONAL AIR POLLUTION CONTROL AGENCY NOV_s TO ESSEX; OCTOBER 27, 1977, DECEMBER 31, 1979 AND MARCH 31, 1980
- GG. NJDEP INCIDENT REPORT: ISOCYANATE FUMES; OCTOBER 25, 1984
- HH. MIDDLESEX COUNTY HEALTH DEPARTMENT NOV; MARCH 24, 1986
- II. NJDEP/DEQ STACK LOG LISTING: ESSEX SPECIALTY PRODUCTS; MAY 10, 1990
- JJ. SOIL SURVEY OF MIDDLESEX COUNTY, NEW JERSEY
- KK. WOODWARD-CLYDE CONSULTANTS PROGRESS REPORT NO. 5; MARCH 1991
- LL. MIDDLESEX COUNTY HEALTH DEPARTMENT: DISCHARGE NOTIFICATION REPORT; AUGUST 6, 1990
- MM. USEPA CONSENT AGREEMENT AND ORDER IN THE MATTER OF ESSEX CHEMICAL CORP.; MAY 11, 1978
- NN. NJDEP/DHWM NOTICE OF CIVIL ADMINISTRATIVE PENALTY ASSESSMENT; APRIL 3, 1987
- OO. NJDEP AND ESSEX CHEMICAL CORP. ACO; OCTOBER 20, 1988
- PP. NJDEP AND ESSEX CHEMICAL CORP., AMENDMENT TO ACO; JUNE 29, 1990
- QQ. ESSEX SPECIALTY PRODUCTS REPORT NO. 87-125: ANALYSIS OF UNDERGROUND WELL WATER; DECEMBER 1, 1987
- RR. SEPTEMBER 1988 MONITORING WELL SAMPLING AND ANALYTICAL RESULTS; NOVEMBER 1988
- SS. ANALYTICAL QUALITY ASSURANCE REVIEW: SOIL SAMPLES COLLECTED OCTOBER 27 AND DECEMBER 7, 1989

NARRATIVE

ESSEX CHEMICAL CORPORATION
AKA: ESSEX SPECIALTY PRODUCTS, INC.
1 CROSSMAN ROAD SOUTH
SAYREVILLE BOROUGH, MIDDLESEX COUNTY, NEW JERSEY
EPA ID NO. NJD002568715

GENERAL INFORMATION AND SITE HISTORY

The Essex Chemical Corporation, now Essex Specialty Products (Essex), encompasses 15.32 acres located on Block 251, Lot 2 and Block 366A, Lot 2 in the Borough of Sayreville, Middlesex County. The site is located in an industrial/commercial area and is bounded by Main Street to the north, Crossman Road South and an abandoned chemical plant (Saytech) to the west, the Raritan River Railroad to the south and wooded land to the east. The site consists of a 90,000 square-foot one and two-story building which was built on vacant wooded land in 1965 and contains offices, manufacturing and warehouse space. A research laboratory was built in 1982, and is located south of the manufacturing building. The estimated population within 4.0 miles is 100,000.

From 1945 to 1965 the site was owned by Such Clay Company. In 1965 the property was purchased by Kaplan and Sons Construction who sold the property to Essex Chemical Corporation in March 1967. On September 3, 1988 D.C. Acquisition Corporation (a wholly-owned subsidiary of Dow Chemical Company) and Essex Chemical Corporation entered into an agreement in which D.C. Acquisition would purchase the shares of Essex Chemical Corporation and, upon this, D.C. Acquisition would be merged into Essex Chemical Corporation. This transaction subsequently triggered an Environmental Cleanup Responsibility Act (ECRA) investigation by the NJDEP/Division of Hazardous Waste Management (DHWM). In July 1990 Essex Chemical Corporation transferred ownership of the property to Essex Specialty Products. According to the Sayreville Tax Office, Block 251, Lot 2 and Block 366A, Lot 2 are owned by Essex Chemical Corporation in care of the Dow Chemical Company.

Essex produces various adhesives, sealants, strengthening materials and sound and vibration reduction materials for the transportation, metal fabricating, appliance manufacturing, packing and paper and plastic industries. With the exception of a latex manufacturing operation which ceased in 1984 and a polypropylene hot-melt adhesive operation which ceased in 1986, operations on site have remained the same.

SITE OPERATIONS OF CONCERN

As stated, Essex produces various adhesives, coatings, strengthening and sound and vibration reduction materials. One of Essex's major products is a fiberglass sheet with a layer of adhesive on the back. This product is produced by a patented process called the Betabrace process. The material is used by automotive manufacturers as auto body panel reinforcement. Products are produced by mixing various resins and powdered fillers with either liquid solvents or plasticizers under controlled conditions. Raw materials are ground or extruded to specification prior to blending operations. Production is of the batch type, and reactors are intermittently cleaned with toluene or methyl ethyl ketone (MEK). Finished products are shipped off site in boxes, cans, drums and tank trucks.

Ref. No 4 p. 6

In 1982 a research and development building was constructed south of the manufacturing building. The building contains eight small laboratories as well as offices and equipment storage. The laboratories include: 1) coating/primers; 2) structural adhesives and reinforcers; 3) epoxy, adhesives and reinforcers; 4) adhesive research; 5) castable urethane; 6) urethane adhesives; 7) bonding adhesives; and 8) hot melt adhesives.

Raw materials, both powder and liquid are stored in cans, drums and bags within the warehouse, production and laboratory buildings and include various plasticizers [bis(2-ethylhexyl) phthalate], resins, solvents, (toluene, xylene, MEK) and oils. Bulk material storage is located in an aboveground tank farm located southeast of the manufacturing building. It was built in 1981 to replace an underground tank farm located in the northeastern portion of the property. The aboveground tank farm consists of ten steel tanks of which seven are in use. The tanks range in size from 10,000 to 12,500 gallons. Materials stored include MEK, reclaimed solvents, toluene, di-isodecyl phthalate, di-alkyl phthalate (santicizer 711), Px 316 (plasticizer) and Pluracol TP440. During a Pre-Sampling Assessment (PSA) conducted by the NJDEPE/Division of Responsible Party Site Remediation (DRPSR)/Bureau of Site Assessment (BSA) on October 15, 1991 it was noted that the tank farm had a concrete base and 6-inch high curbing surrounding it. There are five other active aboveground tanks on site including four tanks located at the southeast corner of the manufacturing building: two 9,500-gallon polypropylene glycol tanks, a 6,000-gallon methyl diphenyl diisocyanate and a liquid nitrogen tank. A 6,076-gallon aboveground oil/water separator which collects storm water runoff from the eastern portion of the site is located northeast of the manufacturing building near a former underground storage tank (UST) tank farm. During the October 15, 1991 PSA three unused tanks were noted along the northeastern corner of the manufacturing building. These tanks included a 20,000-gallon hot melt product tank, a 7,500-gallon Sun Oil tank and a polymer process vessel. A list of storage vessels can be found in Table 1.

The UST tank farm was located northeast of the manufacturing plant and consisted of 16 partially buried tanks. The tanks ranged in size from 1,500 to 7,500 gallons and contained toluene, xylene, mineral spirits, reclaimed solvents, MEK; bis(2-ethylhexyl) phthalate, di-isodecyl phthalate and diesel fuel. The tanks were removed in January 1983 due to a bis(2-ethylhexyl) phthalate spill which occurred in August 1978 during filling operations of Tanks #101 and #102.

Wastes generated on site include waste flammable liquids, primers, sludges and other products generated from coating and adhesive operations as well as tank wash residues unsuitable for reclamation, waste flammable solvents (toluene, MEK and xylene) from tank washing and waste oils from changing of vacuum pumps and compressors. Wastes are stored in drums within a concrete paved and diked area northwest of the aboveground tank farm. No records of spillage or release from the drum storage area were found on file. According to a 1989 Hazardous Waste Generator Annual Report, Essex manifested 29,509 gallons of F005 (non-halogenated solvents) and 9,444 gallons of D001 wastes. Wastes generated from the laboratory building, which include alkaline wastes generated from solvent washes, are also stored in the hazardous waste drum storage area.

On November 18, 1980 Essex filed a Part A application with the United States Environmental Protection Agency (USEPA) as both a generator and a treatment, storage or disposal facility (TSD) for containerized storage, surface impoundment treatment and hazardous waste incineration. The surface impoundment and incinerator were never constructed. Essex submitted a request for delisting as a TSD to the NJDEP on November 5, 1982 and May 26, 1983 due to storage of wastes less than 90 days and the negation of the proposed incinerator and surface impoundment. Essex was delisted on August 18, 1983 to generator status only.

On August 25, 1977 the NJDEP conducted an inspection of the facility due to a complaint of an oil spill. During the inspection a sheen was observed on Burts Creek located north of the manufacturing building. Black staining was also noted along the banks of the creek. At that time facility representatives stated that a 400-gallon amorphous polypropylene spill had occurred on March 15, 1977. A followup inspection conducted on September 15, 1977 noted all visually contaminated soil and debris had been removed and filter fences installed within the creek.

On June 28, 1978 Essex reported a 100-gallon bis(2-ethylhexyl) phthalate spill from a 3,000-gallon UST. An NJDEP investigation conducted on June 30, 1978 noted a 100-foot by 100-foot area of saturated soil. Subsequent NJDEP inspections noted that a gravel under-drain system had been installed which allowed groundwater and storm water from the contaminated area to discharge to Burts Creek. The contaminated soil was removed and disposed of off site. On August 30, 1978 a 200-gallon spill of bis(2-ethylhexyl) phthalate occurred during a transfer operation.

As a result of the releases in the UST farm area all the tanks were removed between January 12 and January 20, 1983. During the removal a representative of the NJDEP noted diesel fuel floating on top of the groundwater under and around a 1,500-gallon diesel tank. During the excavation of a wash solvent tank, the tank was punctured and approximately 200 gallons of material spilled into the excavation. Solvent odors and staining were observed during the excavation of five other tanks. Water samples collected by Essex on January 21, 1983 within the tank excavation area contained bis(2-ethylhexyl) phthalate at 2,810 parts per million (ppm), at toluene 1,210 ppm and petroleum hydrocarbons (PHCs) at 49,000 ppm.

A January 28, 1983 Spill Prevention Countermeasure Containment (SPCC) inspection conducted by Roy F. Weston Inc. of Edison, New Jersey noted a drainage pipe leading to Burts Creek, pools of oil like material in the yard, pools of chemicals where the former UST tanks were located and an oily sheen on Burts Creek.

An October 4, 1983 NJDEP/Division of Water Resources (DWR) Compliance Evaluation Inspection of Essex noted evidence of oil or product spills at the rear of the plant.

On April 29, 1986 an 8 pound spill of polymer occurred when a drum overheated and caught fire. No discharge to soil occurred due to the fact that the polymer solidified when the drum was cooled with water.

On August 30, 1988 a 200-gallon spill of bis(2-ethylhexyl) phthalate occurred at the facility. No further information regarding this spill

Ref. NO. 4 p. 8

could be found on file.

A May 4, 1989 NJDEP/DHWM/Bureau of Environmental Evaluation Cleanup Responsibility Assessment (BEECRA) inspection noted sparse or non-existent vegetation in the area of the former UST farm, and soil staining was observed along the southeast fence line near the hazardous waste drum storage area and the tank loading and parking areas. Discolored soil was also observed near the aboveground tank farm. Also, an oily substance was observed seeping into Burts Creek near the former UST farm. This area has been addressed in accordance with a August 13, 1990 ECRA Cleanup Plan.

GROUNDWATER ROUTE

The facility lies within the Atlantic Coastal Plain Physiographic Province. The site is underlain by the Potomac-Raritan-Magothy (PRM) Formation of the late Cretaceous age. Regionally the PRM consists of seven geologic members including the Amboy Stoneware Clay, Old Bridge Sand, South Amboy Fire Clay, Sayreville Sand, Woodbridge Clay, Farrington Sand and the Raritan Fire Clay. Of these the Old Bridge Sand and Farrington Sand are the main aquifers. The two members are separated by two clay layers with a combined thickness of 100 feet.

The PRM Formation underlying Essex consists of two sand aquifers separated by a clay layer consisting of clay, silty clay and clayey silts. This clay layer ranges in thickness from 3 feet at the north end of the site to 20 feet in the southern portion of the site. The shallow unconfined aquifer extends from the surface to a depth of 17 feet and consists of light tan to light gray, fine to medium sand. There is also evidence that portions of this aquifer consists of fill material. Depth to water ranges from 1 to 9 feet and flow is toward the northwest. The deep aquifer consists of fine to medium-grained sands with occasional layers of silt and clay. Groundwater within this aquifer flows in a westerly direction following general topographic elevation.

On March 23, 1979 five monitoring wells OW-106S, OW-106D, OW-107, OW-111S, and OW-111D were installed in conjunction with the 1978 UST tank leak and phthalate spill. OW-106S, OW-106D and OW-107 are located approximately 50 feet north and 50 feet west of the former UST farm. OW-111S and OW-111D are located approximately 80 feet northwest of the UST farm across Burts Creek. During an October 15, 1991 NJDEP/DRPSR/BSA Pre-Sampling Assessment wells OW-111S and OW-111D appeared to have been sealed. Seven additional wells were installed on June 21, 1983: OW-1S, OW-1D, OW-2S, OW-3S, OW-3D, OW-4S and OW-4D. OW-1S and OW-1D are located approximately 60 feet southeast (upgradient) of the UST farm while OW-2S, OW-3S and OW-3D are located west northwest of the UST farm across Burts Creek. OW-4S and OW-4D are located approximately 170 feet west of the UST farm (see Map 2A). Well depth and casing diameter are as follows:

<u>WELL</u>	<u>DEPTH (feet)</u>	<u>CASING DIAMETER (inches)</u>
OW-1S	8	3
OW-1D	16.5	3
OW-3	14	3
OW-4S	18	3
OW-4D	26	3
OW-106S	14	2
OW-106D	17	2

Ref. No. 4 p. 9

<u>WELL</u>	<u>DEPTH (feet)</u>	<u>CASING DIAMETER (inches)</u>
OW-107	13.5	2
OW-111S	9.5	2
OW-111D	20	2

Sampling of these wells have revealed high levels of toluene, xylene and bis(2-ethylhexyl) phthalate. Toluene was detected at 53,400 parts per billion (ppb) in OW-107 from a sample collected on August 17, 1982. Xylene concentrations were as high as 450 ppm in OW-107 from a sample collected on July 14, 1983 and bis(2-ethylhexyl) phthalate was detected at 23,000 ppb in OW-106S and up to 1,500 ppb in OW-3D.

Eight additional monitoring wells were installed from March 5 to 16, 1990 in conjunction with an ECRA investigation. Five of the wells were screened in the shallow aquifer (MW-1S, MW-2S, SMW-3S, SMW-4S and SMW-1AS). The 4-inch diameter wells range in depth from 7 to 10 feet. MW-1S and SMW-3S are located 40 feet east and 20 feet west of the aboveground tank farm. MW-2S is located approximately 30 feet west of the hazardous waste drum storage area while SMW-4S and SMW-1AS are located along the eastern fence line (see Map 2A). Deep wells MW-1D, SMW-107D and SMW-1AD are 36 feet, 26.4 feet and 38 feet deep, respectively. Sampling of these wells has revealed volatile organics and phthalates.

Residents within 4 miles of the site are supplied by public water supply systems. There are 30 public supply wells within 4 miles of the site, with the closest located approximately 2.1 miles east-southeast of the site. This well along with 16 others are operated by the Sayreville Borough Water Department. Four of these wells draw from Farrington Sand with depths ranging from 500 to 1,250 feet deep, while 13 wells draw from the Old Bridge Sand and range in depth from 300 to 700 feet deep. The Sayreville Borough Water Department serves approximately 39,000 residents within the municipalities of Sayreville and South Amboy.

The Perth Amboy Department of Municipal Utilities operates five wells located approximately 3.5 miles south of the site. Four of the wells draw from the Old Bridge Sand while one draws from the Farrington Sand. The Perth Amboy Department of Municipal Utilities serves approximately 48,500 residents within the municipalities of Perth Amboy, South Amboy, Woodbridge and Sayreville.

The South River Water Department operates three wells drawing from the Farrington Sand. The wells are located approximately 3.6 miles southwest of the site and are between 187 and 213 feet deep. Approximately 16,000 residents within South River are supplied by the South River Water Department.

The Old Bridge Municipal Utilities Authority (MUA) operates one well within 4.0 miles of the site. The well is 371 feet deep and draws from the Farrington Sand. The Old Bridge MUA obtains its water from nine additional wells and a bulk purchase from the Middlesex Water Company and serves approximately 53,000 residents within Old Bridge Township. The estimated population served by the one well is 3,700. The estimated population served by groundwater supplies within 4.0 miles of the site is 67,200.

There are approximately 37 industrial wells located within 4.0 miles of the site, with the closest being located 1.9 miles southwest operated by Hercules Incorporated.

There is observed groundwater contamination. Sampling of monitoring wells has revealed toluene, xylenes as well as phthalates. Essex does not hold any permits for discharge to groundwater with the NJDEP; however, during an October 15, 1991 NJDEPE/DRPSR/BSA PSA a representative of Essex stated that groundwater remediation system is proposed to be installed within the UST farm area within a year. Contaminated groundwater would be pumped and treated, if necessary, prior to discharge to the Middlesex County Utilities Authority (MCUA).

SURFACE WATER ROUTE

The facility is located within the Raritan River drainage basin, 4,000 feet south of the Raritan River. The site slopes gently to the northwest towards a small creek (Burts Creek) which is located on the northern section of the site. Burts Creek flows southwest from the site and then turns north and flows towards the Raritan River located approximately 0.9 mile downstream of the site. The Raritan River flows in a generally easterly direction for approximately 4.5 miles before emptying into the Raritan Bay. No documentation was found indicating any use of Burts Creek, which is a FW-2 non-trout stream. The Raritan River and Raritan Bay are used for both commercial and recreational purposes.

A low area is located on the northern portion of the site; however, this area does not appear on a National Wetlands Inventory Map. The nearest downstream wetland includes a small (0.9 acre) palustrine emergent wetland located 900 feet southwest of the site. There are several estuarine wetlands located along the Raritan River with the closest being 0.4 mile northwest of the site. There are no critical habitats of any state or federal endangered species within 2 miles of the site. However, several threatened and endangered species utilize habitats found within the South Amboy Quadrangle including the pine barrens treefrog, Hyla andersonii; American shad, Alosa sapidissima; bog turtle, Clemmys muhlenbergii; yellow-crowned night-heron, Nyctanassa violaceus; and northern harrier, Circus cyaneus.

Visual and analytical evidence of surface water contamination due to past discharges and releases exists. Floor drains within the facility were used from approximately 1970 to 1980. These drains discharged cooling water from the manufacturing operation to Burts Creek via a NJPDES permit. Essex was issued NJPDES Permit No. NJ0003093 on July 31, 1975 for the discharge of approximately 210,000 gallons of cooling water per day to Burts Creek. Discharge waters were generated from the urethane and plastisol production areas as well as steam condensate from other areas. In April 1983 the floor and storm drains which discharged to Burts Creek were rerouted and the discharge pipes were either removed or sealed. An UST oil/water separator was installed in April 1983 and received the floor and storm water runoff prior to discharge to MCUA. Only stormwaters collected in the eastern and southern portions of the manufacturing facility are directed to the oil/water separator, all others flow into storm sewers and then directly to the MCUA. Essex received an affidavit from the NJDEP/DWR exempting the facility from NJPDES on July 15, 1985. The UST oil/water separator was replaced by a 6,000-gallon aboveground tank in July 1991.

On March 21, 1990 Essex submitted an application for a freshwater wetlands and stream encroachment permit due to the remedial activities involved with the excavation of contaminated soil in the former UST farm and seep area. The permit was issued on February 17, 1991 and currently the soil excavated from this remediation is staged on site.

AIR ROUTE

No records of air sampling at the facility were found on file. However, episodes of releases have been documented. An October 21, 1977 inspection conducted by the Central Jersey Regional Air Pollution Control Agency (CJRAPCA) noted visible smoke being emitted to the outdoor air from a hot melt storage tank heater.

On December 10, 1979 the CJRAPCA noted excessive black smoke being emitted by a Cleaver Brooks boiler stack.

Excessive smoke emissions from the hot melt storage tank heater were again noted by the CJRAPCA during a March 23, 1980 inspection. The area was also investigated by the Middlesex County Health Department on November 7, 1985 due to a complaint of burnt plastic type odors emitted from the plant.

Essex holds twenty air pollution permits with the NJDEPE under Plant ID No. 15550 for various tank vents, a primer dust collector, plastisol mixers and emissions from the Betabrace operation. Violations due to air emission were found on file. A Notice of Violation (NOV) was issued to Essex by the CJRAPCA due to visible smoke emitted by a hot melt storage tank heater noted during an October 21, 1977 inspection.

On December 31, 1979 the CJRAPCA issued Essex a NOV due to violations noted during a December 10, 1979 inspection. Another NOV was issued to Essex by the CJRAPCA on March 31, 1980 due to excessive smoke emissions from the hot melt storage tank heater.

The Middlesex County Health Department issued Essex an NOV on March 24, 1986 due to a verified complaint of odors emanating from the facility.

SOIL

The majority of the site is paved and on-site soils are described as Urban Land Series (UL). The Urban Land Series consists of areas where more than 60 percent of the surface is covered by industrial plants, business centers and/or other structures. The soils are generally well-drained silty sand. The Urban Land Series soils are found in the northern third of the site. Soils in the southern portions of the site consist of Atsion Sand (AT), Klej Loamy Sand (KIA) and Lakehurst Sand (LaA). Atsion Sand soils are nearly level, poorly-drained dark loamy sand which are generally covered with a layer of peat. The Klej Loamy Sands are nearly level, moderately to somewhat poorly-drained loamy sand and Lakehurst Sands are nearly level and moderately to somewhat poorly-drained and are highly permeable and extremely acidic.

Sampling of on-site soils has revealed PHC and base/neutral contamination. In July 1982, samples from eight borings located north of the aboveground tank farm and north of the UST farm were collected. Plasticizers were detected in a sample collected near the aboveground tank farm at 930 ppm while plasticizers were detected up to 15,000 ppm in a sample collected near the UST farm. In October and December 1989 high levels of

Ref No 4 O. 12

base/neutrals were detected in samples collected near the former UST farm and phthalate spill area. Bis(2-ethylhexyl) phthalate was detected at levels up to 1,800 ppm.

Spills and releases of hazardous substances to on-site soils have been documented, and were previously discussed. As part of an August 13, 1990 ECRA Cleanup Plan, contaminated soil was scheduled to be excavated within the phthalate spill and UST farm areas (Area 1). The area was subdivided into five subareas (A, B-1, B-2, B-3 and D). Approximately 470 cubic yards of soil was excavated from the five subareas between March 12 and 19, 1991. Between March 27 and April 2, 1991 a large portion of the excavated soil was transported to Wayne Disposal Inc. of Belleville, Michigan. During the October 15, 1991 NJDEPE/DRPSR/BSA PSA approximately 60 cubic yards of soil was found staged in the northeastern portion of the site. The soil was only partly covered with plastic and any runoff could migrate from the piles to Burts Creek.

Post-excavation samples collected between March 13 and 19, 1991 indicated slightly elevated levels of PHC and base/neutrals. There is a continued potential for soil contamination due to operations conducted on site.

DIRECT CONTACT

No incidents of direct contact with on-site wastes have been found on file. The potential for direct contact with on-site wastes is low. Hazardous wastes are stored within a fenced drum storage area; however, a potential for direct contact from wastes entering Burts Creek does exist. The site is fenced, but no other access controls are present. Approximately 30 people are employed at the facility.

FIRE AND EXPLOSION

Incidents of fire at the facility were found on file. On October 25, 1984 the Sayreville Fire Department investigated fumes of isocyanate within the manufacturing building which was caused by an exothermic reaction. Documentation on file stated that the firemen had entered the building without respiratory protection. No further information was found on file. On April 26, 1986 a paper and polymer fire occurred in the laboratory building. The fire was extinguished with no release of smoke or odors. On August 6, 1990 a small oil spill and fire occurred within the facility. The spill was contained and the fire extinguished by the local fire department.

There is a continued potential for fire or explosion at the facility. Essex uses and stores flammable materials including toluene, MEK, xylene and various other solvents.

ADDITIONAL CONSIDERATIONS

Damage to flora due to past releases in the UST farm area has been documented. During a June 30, 1978 NJDEP inspection, black discoloration of soil and vegetation was noted in a 100-foot by 100-foot area along the former UST farm. A May 22, 1989 NJDEP/DHWM/BEECRA inspection noted areas of sparse or non-existent vegetation surrounding the aboveground tank farm area.

Contamination of the food chain is possible; surface water and sediment samples collected from Burts Creek have revealed high concentrations of bis(2-ethylhexyl) phthalate, which is known to have bioaccumulative

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properties. Damage to off-site property has not been documented, however, the potential exists due to the possible migration of contaminants via Burts Creek.

ENFORCEMENT ACTIONS

Notices of Violation (NOV) and other enforcement actions have been issued to Essex by both federal and state agencies.

On October 6, 1978 Essex was issued an NOV by the USEPA for violations of the Oil Pollution Prevention Regulations. On February 4, 1983 the USEPA issued Essex a NOV for failing to fully implement a Spill Containment and Countermeasure Plan (SPCC). In May 1984 Essex and the USEPA entered into a Consent Agreement and Order for the October 6, 1978 and February 4, 1983 violations. Essex was required to implement a SPCC plan within 30 days and pay a penalty of \$2,000 to the United States Coast Guard.

On April 3, 1987 Essex was issued a Notice of Civil Administrative Penalty Assessment by the NJDEP/DHWM for storing wastes in excess of 90 days and for failing to conduct daily inspections of hazardous waste containment areas. Essex was assessed a penalty of \$1,500.

On October 20, 1988 Essex entered into an Administrative Consent Order due to an ECRA investigation. Essex was ordered to complete the ECRA initial notice, initiate and complete an NJDEP approved sampling plan and implement a cleanup plan based on the sampling plan's results. An amendment to the October 20, 1988 ACO was entered by Essex and the NJDEP on June 29, 1990 due to the transfer of the property from Essex Chemical Corporation to Essex Specialty Products. However, cleanup activities would still be conducted under the provisions of the October 20, 1988 ACO. Essex obtained an ECRA cleanup plan approval from the NJDEP/DHWM/BEECRA on August 20, 1990.

SUMMARY OF SAMPLING DATA

1. Sampling date: August 17, 1982
Sampled by: Woodward-Clyde Consultants
201 Willowbrook Boulevard
Wayne, New Jersey
Samples: 7 groundwater samples
Laboratory: General Testing Corporation
710 Exchange Street
Rochester, New York
New Jersey Laboratory Certification #73331
Parameters: Toluene and bis(2-ethylhexyl) phthalate
Sample description: Groundwater samples were collected from downgradient wells OW-3S, OW-3D, OW-106S, OW-106D, OW-107S, OW-111S and OW-111D.
Contaminants detected: Toluene was detected at low levels in all the samples except OW-107S. OW-107S contained 53,400 ppb toluene while the other samples

Ref No. 4 p. 14

ranged from 1 ppb (OW-3D) to 15 ppb (OW-106D). All the samples contained bis(2-ethylhexyl) phthalate except for OW-111D. Levels detected can be found below:

BIS(2-ETHYLHEXYL) PHTHALATE CONCENTRATIONS
IN SAMPLES COLLECTED AUGUST 17, 1982

<u>WELL</u>	<u>CONCENTRATION (ppb)</u>
OW-3S	1,300
OW-3D	1,500
OW-106S	23,000
OW-106D	50
OW-107S	150
OW-111S	110
OW-111D	Not detected

QA/QC: No information concerning the utilization of field or trip blanks were found in data package. General Testing Corporation is a New Jersey certified laboratory.

File location: Attachment B
NJDEP/DRPSR/BEECRA
401 East State Street
Trenton, New Jersey

2. Sampling date: July 14, 1983

Sampled by: Woodward-Clyde Consultants
201 Willowbrook Boulevard
Wayne, New Jersey

Samples: 12 groundwater samples

Laboratory: Chyun Associates
1101-B State Road
Princeton, New Jersey
New Jersey Laboratory Certification #11198

Parameters: Benzene, toluene, total xylenes and
bis(2-ethylhexyl) phthalate

Sample description: Samples were collected from the 12 monitoring wells on site at that time (OW1S, OW1D, OW2S, OW3S, OW3D, OW4S, OW4D, OW106S, OW106D, OW107S, OW111S and OW111D).

Contaminants detected: No benzene was detected in any of the samples collected. Toluene was detected in three samples, OW-106D, OW-107S and OW-111D at 4.6 ppb, 9,300 ppb and 1.3 ppb, respectively. Xylene was only detected in OW-4S and OW-107S at 1.3 ppb and 450 ppb, respectively. Bis(2-ethylhexyl) phthalate was detected in

Ref No. 4 p. 15

all the samples collected with levels ranging from 25 ppb (OW-3S) to 140 ppb (OW-107S). OW-106S [which contained 23,000 ppb bis(2-ethylhexyl) phthalate during August 17, 1982 sampling episode] contained only 44 ppb in the July 14, 1983 sampling episode.

QA/QC: Samples were collected in accordance with NJDEP guidelines. Chyun Associates is a New Jersey certified laboratory.

File location: Attachment B
NJDEPE/DRPSR/BEECRA
401 East State Street
Trenton, New Jersey

3. Sampling date: August 24, 1984

Sampled by: Woodward-Clyde Consultants
201 Willowbrook Boulevard
Wayne, New Jersey

Samples: 8 groundwater samples
1 surface water sample

Laboratory: General Testing Corporation
710 Exchange Street
Rochester, New York
New Jersey Laboratory Certification #73331

Parameters: Toluene, total xylenes and bis(2-ethylhexyl) phthalate

Sample description: Groundwater samples were collected from OW-1S, OW-1D, OW-2S, OW-4S, OW-106S, OW-106D, OW-107S and OW-111S. In addition, a surface water sample was collected from Burt's Creek.

Contaminants detected: Toluene was detected in all the samples collected except OW-4S. Concentrations ranged from 1.1 ppb (OW-2S) to 1,460 ppb (OW-107S). The surface water sample contained toluene at 1.1 ppb. Xylene was only detected in OW-1S and OW-107S at 1.5 ppb and 440 ppb, respectively. Documentation does not state whether the stream sample was analyzed for either xylene or bis(2-ethylhexyl) phthalate. OW-1D and OW-2S contained the highest concentrations of bis(2-ethylhexyl) phthalate at 260 ppb and 220 ppb, respectively. Concentrations of bis(2-ethylhexyl) phthalate in the other well samples ranged from 23 ppb (OW-107S) to 93 ppb (OW-1S). A summary of contaminants detected can be found in Attachment PP-3 to PP-5.

Ref. No. 4 p. 16

QA/QC: No information concerning the use of field or trip blanks were found on file. General Testing Corporation is a New Jersey certified laboratory.

File location: Attachment PP
NJDEPE/DRPSR/BEECRA
401 East State Street
Trenton, New Jersey

4. Sampling date: December 13, 1985

Sampled by: Princeton Aqua Science
165 Fieldcrest Avenue
Edison, New Jersey

Samples: 8 groundwater samples
2 surface water samples

Laboratory: Princeton Aqua Science
165 Fieldcrest Avenue
Edison, New Jersey
New Jersey Laboratory Certification #12064

Parameters: Toluene, xylene and bis(2-ethylhexyl)
phthalate

Sample description: Groundwater samples were collected from eight monitoring wells (OW-1S, OW-1D, OW-2S, OW-4S, OW-106S, OW-106D, OW-107S and OW-111S).

One surface water sample was collected from Burts Creek both upstream and downstream. The upstream sample was collected near a visible seep of clear oily liquid flowing into the creek from the general location of the phthalate spill.

Contaminants detected: Bis(2-ethylhexyl) phthalate was detected only in the surface water samples 400 ppb (upstream), 150 ppb (downstream). OW-107S contained xylene at 80 ppb. Xylene was also detected in the downstream surface water sample at 19 ppb. Toluene was not detected in any of the samples collected.

QA/QC: No field or trip blanks were utilized. No information was found on file with regards to the data undergoing a formal QA/QC review. Princeton Aqua Science is a New Jersey certified laboratory.

File location: Attachment PP
NJDEPE/DRPSR/BEECRA
401 East State Street
Trenton, New Jersey

5. Sampling dates: September 13 and 21, 1988

Sampled by: IT Corporation
165 Fieldcrest Avenue
Edison, New Jersey

Samples: 18 groundwater samples
1 surface water sample

Laboratory: IT-Analytical Services
165 Fieldcrest Avenue
Edison, New Jersey
New Jersey Laboratory Certification #12064

Parameters: Volatile organics, base/neutrals, pesticides,
PCBs and metals

Sample description: Groundwater samples were collected from 12
monitoring wells located on site. OW-4S,
OW-4D, OW-106S, OW-106D, OW-3D and OW-107S
were sampled again on September 21, 1988 due
to the exceedance of holding times in the
September 13, 1988 samples.

One stream sample was collected from Burts
Creek near a visible seep of clear oily
liquid in the location of the phthalate spill
area.

Contaminants detected: Only one sample contained significant
concentrations of volatile organics. OW-107S
contained total xylenes at 400 ppb,
1,1,2-trichloro-1,2,2-trifluoroethane at 130
ppb, and dichlorodifluoromethane at 65 ppb.
Methylene chloride was detected in all the
samples; however, this is most likely
attributable to laboratory contamination.
OW-1S, OW-1D, OW-3D, OW-4S, OW-106S, OW-107S,
OW-111S, OW-111D and the stream sample
contained detectable concentrations of
bis(2-ethylhexyl) phthalate, which ranged
from 10 ppb (OW-1S) to 20 ppb (OW-111D) in
the well sample and 950 ppb within the stream
sample.

OW-2S and OW-111D also contained
dichloromethane at 1,300 ppb. None of the
samples contained pesticides or PCBs. OW-3S
and OW-4S contained chromium above the 50 ppb
action level with concentrations of 99 ppb
and 440 ppb, respectively.

Ref. No. 4 p. 18

QA/QC: Sampling was performed in accordance with NJDEP protocol. IT Corporation is a New Jersey certified laboratory.

File location: Attachment QQ
NJDEPE/DRPSR/BEECRA
401 East State Street
Trenton, New Jersey

6. Sampling date: October 27, 1989

Sampled by: Environmental Resources Management Inc.
Carnegie Professional Building
Suite 204
100 Canal Pointe Boulevard
Princeton, New Jersey

Samples: 21 soil samples

Laboratory: Intech Biolabs
158 Tices Lane
East Brunswick, New Jersey
New Jersey Laboratory Certification #12427

Parameters: Base/neutrals

Sample description: Twenty soil samples were collected from eight borings (R-1 to R-8) located in the phthalate seep area (Area 1). In addition, one duplicate sample was collected from R-7A (0 to 9 inches). Up to three samples were collected from each boring, designated A, B and C. Sample depth ranged from 0 to 12 inches (A), 24 to 36 inches (B) and 48 to 54 inches (C). One sample (R-9A) was collected from a boring location not identified on any documentation (see Site Map 2).

Contaminants detected: The most common base/neutral (B/N) detected was bis(2-ethylhexyl) phthalate, found in 17 of the 21 samples. Detected levels ranged from 200 ppb (R-3C) to 1,800,000 ppb (R-1A). High concentrations were also detected in R-3B (22,000 ppb), R-4A (79,000 ppb), R-8B (29,000 ppb) and R-4A (31,000 ppb). Other B/Ns detected include di-n-octyl phthalate found in four samples R-1A, R-3B, R-8B and R-8C with levels ranging from 300 ppb to 3,100 ppb and phenanthrene detected in R-2A, R-7A duplicate, R-7B, R-8A and R-9A. Phenanthrene concentrations ranged from 94 ppb (R-9A) to 900 ppb (R-2A). A summary of B/Ns detected can be found in Table 2.

QA/QC: An equipment blank EB-1 and trip blank TB-1 were analyzed for B/Ns. No contaminants were

Ref. No. 4 p. 19

detected in either sample. A formal QA/QC data package was submitted to the NJDEP.

File location:

Attachment RR
NJDEPE/DRPSR/BEECRA
401 East State Street
Trenton, New Jersey

7. Sampling date:

December 7, 1989

Sampled by:

Environmental Resources Management, Inc.
Carnegie Professional Building
Suite 204
100 Canal Pointe Boulevard
Princeton, New Jersey

Samples:

9 soil samples

Laboratory:

Intech Biolabs
158 Tices Lane
East Brunswick, New Jersey
New Jersey Laboratory Certification #12427

Parameters:

Base/neutrals

Sample description:

Nine soil samples were collected from five different borings located in the phthalate seep area. One sample was collected from borings DR-10, DR-11 and DR-12 at a depth of 0 to 6 inches. While DR-13 had two samples collected; A (0 to 6 inches) and B (24 to 26 inches). Three samples were collected from boring DR-14. DR-14A (6 to 12 inches), DR-14B (30 to 36 inches) and DR-14C (42 to 44 inches). See Site Map 2.

Contaminants detected:

Targeted base/neutrals were detected above the NJDEP action level of 10 ppm in DR-13A (16.7 ppm), DR-14B (86.3 ppm) and DR-14C (24.9 ppm). Bis(2-ethylhexyl) phthalate was the most common B/N detected; found in eight of the nine samples collected. Levels of this compound ranged from 55 ppb (DR-13R) to 84,000 ppb (DR-14B). A summary of B/Ns detected in soil samples collected on December 7, 1989 can be found on Table 3.

QA/QC:

A trip blank (DTB-2) and an equipment blank (DEB-2) were utilized. Three tentatively identified compounds were detected in DEB-2 at 67.4 ppb.

A formal QA/QC package was submitted to the NJDEP. Intech Biolabs is a New Jersey certified laboratory.

File location: Attachment U
NJDEPE/DRPSR/BEECRA
401 East State Street
Trenton, New Jersey

8. Sampling dates: March 6, 7 and 15, 1990

Sampled by: Environmental Resources Management, Inc.
Carnegie Professional Building
Suite 204
100 Canal Pointe Boulevard
Princeton, New Jersey

Samples: 46 soil samples
6 stream sediment samples
5 drain sediment samples
4 drain water samples
2 creek water samples

Laboratory: Intech Biolabs
158 Tices Lane
East Brunswick, New Jersey
New Jersey Laboratory Certification #12427

Parameters: Volatile organics, base/neutrals, metals and
petroleum hydrocarbons (PHCs)

Sample description: Forty-six soil samples were collected from seven ECRA areas of concern, which included the phthalate spill and seep area (Area 1), aboveground tank farm (Area 2), hazardous waste drum storage area (Area 3), empty drum storage area (Area 4), filter burn area (Area 5), Kneader extruder hot oil heater (Area 7) and steam condensate drain (Area 8). A list of soil samples collected can be found in Table 4. Six stream sediment samples S-19, S-20, S-21, S-22, S-23 and SS-12 were collected from the phthalate seep area and near the former NJPDES discharge to Burts Creek. Sample depths were 0 to 2 feet. Five drain sediment samples were collected from spill prevention/sewer drains located northeast, southeast and southwest of the warehouse (S-2, S-3, SS-5, SS-6 and SS-11). Four drain water samples (SW-2, SW-3, SW-4 and SW-11) were also collected from spill prevention/sewer drains (Area 9). Two water samples were collected from Burts Creek within the phthalate spill and seep area (RC-1A and RC-2A).

Contaminants detected: Of the 46 soil samples collected, 20 were analyzed for base/neutrals. The samples collected from the former UST area (SS-9A and

SS-9B) contained the highest levels of base/neutrals. Total targeted base/neutrals detected in these two samples were 36,083 ppm and 10,011 ppm, respectively, with bis(2-ethylhexyl) phthalate being the major contaminant of concern. Seven other samples contained total base/neutral concentrations above the 10 ppm NJDEP action level: P-15A (14.0 ppm), P-17B (41 ppm), P-18A (28.4 ppm), P-27A (15 ppm), P-31 Dup (10.1 ppm), SS-7A (13 ppm) and SS-13 (14.2 ppm). Base/neutrals were also detected above NJDEP action levels in all the drain sediment samples, S-2 (1,564 ppm), SS-3 (859.6 ppm), SS-5 (30.3 ppm), SS-6 (5,904.8 ppm) and SS-11 (268 ppm) as well as three creek sediment samples, SS-12 (31.5 ppm), S-20 (28.1 ppm) and S-23 (180 ppm). Of the 20 soil and/or sediment samples analyzed for volatile organics only the samples collected in the phthalate spill area (Area 1) contained volatile organics above NJDEP action levels. S-21 (creek sediment), SS-9A and SS-9B exhibited total volatile organic concentrations of 48 ppm, 35.9 ppm and 13.4 ppm, respectively, with xylenes being the major contaminant.

All the samples collected except for SS-7A, SS-7B and SS-13 were analyzed for PHCs. PHCs were detected above NJDEP action levels in 27 soil and sediment samples with concentrations ranging from 100 ppm (S-20) to 13,000 ppm (SS-3). Samples with PHC levels of the NJDEP action level can be found below:

<u>SAMPLE</u>	<u>CONCENTRATION (ppm)</u>
P-11B	440
P-12B	1,400
P-13B	1,300
P-14B	310
P-15A	230
P-15B	170
P-16A	110
P-18A	350
P-19A	390
P-23A	290
P-25A	250
P-26A	130
P-27A	1,200
P-30	790
P-31	120
S-2	5,300
S-20	100
S-22	4,900

Ref. No. 4 p. 22

<u>SAMPLE</u>	<u>CONCENTRATION (ppm)</u>
S-23	800
SS-3	13,000
SS-5	1,700
SS-6	940
SS-9A	420
SS-9B	300
SS-10	110
SS-11	1,300
SS-12	2,900

Only one sample (SS-13) was analyzed for metals. Cadmium and mercury were detected just at NJDEP action levels 3.0 ppm and 1.0 ppm, respectively. All the drain water samples (SW-2, SW-3, SW-4 and SW-11) contained detectable levels of base/neutrals and volatile organics. Di-n-octyl phthalate was detected in SW-2, SW-3 and SW-4 at 68 ppb, 150 ppb and 57 ppb, respectively, toluene was detected in SW-2, SW-3 and SW-4 at 3 ppb, 2 ppb and 8 ppb, respectively. In addition PHCs were detected at levels up to 29 ppm in SW-3. The samples collected from Burts Creek (RC-1A and RC-2A) contained bis(2-ethylhexyl) phthalate at 49 ppb and 2 ppb, respectively. In addition RC-1A contained xylenes and benzene at 4 ppb and 1 ppb, respectively. A summary of contaminants detected can be found in Table 5.

QA/QC:

Trip and field blanks were utilized. Methylene chloride, acetone, 2-butanone, toluene and di-n-butyl phthalate were detected in field or laboratory blanks. A formal QA/QC package was submitted to the NJDEP. Intech Biolabs is a New Jersey certified laboratory.

File location:

Attachment U
NJDEPE/DRPSR/BEECRA
401 East State Street
Trenton, New Jersey

9. Sampling date:

April 5, 1990

Sampled by:

Environmental Resources Management, Inc.
Carnegie Professional Building
Suite 204
100 Canal Pointe Boulevard
Princeton, New Jersey

Samples:

19 groundwater samples

Laboratory: Intech Biolab
158 Tices Lane
East Brunswick, New Jersey
New Jersey Laboratory Certification #12427

Parameters: Volatile organics, base/neutrals and PHC

Sample description: Groundwater samples were collected from 18 monitoring wells installed throughout the site. See Map 2A.

Contaminants detected: Only low levels of volatile organics were detected in OW-107S and OW-4S. Meta-xylene was detected at 9 ppb in OW-107S while trans-1,2-dichloroethene was detected at 3 ppb in OW-4S. Methylene chloride and 2-butanone were detected in 18 and one (SMW-3S) of the 19 samples collected, respectively; however, these contaminants were also detected in the field blanks. MW-1S and MW-1D both contained bis(2-ethylhexyl) phthalate and naphthalene at 22 ppb and 6 ppb, respectively. Bis(2-ethylhexyl) phthalate was detected in four other wells, OW-4S, OW-106S, OW-107S and OW-111S), with levels up to 8 ppb. No other base/neutrals were detected in any of the wells. No PHCs were detected in any of the samples collected. A summary of contaminants detected can be found in Table 5.

QA/QC: Field blanks were utilized. A formal QA/QC package was submitted to the NJDEP. Intech Biolabs is a New Jersey certified laboratory.

File location: Attachment U
NJDEPE/DRPSR/BEECRA
401 East State Street
Trenton, New Jersey

10. Sampling date: January 30, 1991

Sampled by: Direct Environmental Inc.

Samples: Three soil samples

Laboratory: Nytest Environmental, Inc.
75 Urban Avenue
Westbury, New York
New Jersey Laboratory Certification #73469

Parameters: Base/neutrals and PHC

Ref. No. 4 p. 24

Sample description: One post-excavation sample was collected from Sewer Drain No. 11 and Sewer Drain No. 5 at a depth of 12 to 18 inches, (SD11-1 and SD5-1). A duplicate sample SD11-D was collected from Sewer Drain No. 11.

Contaminants detected: Di-n-butylphthalate was detected in all the samples (SD11-1, SD11-D and SD5-1) at 2,500 ppm, 1,100 ppm and 3,000 ppm, respectively. PHC was detected above the NJDEP action level in SD5-1 at 107 ppm.

QA/QC: A field blank was utilized. No information concerning a formal QA/QC review was found in package. Nytest Environmental, Inc. is a New Jersey certified laboratory.

File location: Attachment JJ
NJDEPE/DRPSR/BEECRA
401 East State Street
Trenton, New Jersey

11. Sampling dates: March 13 to 19, 1991

Sampled by: Woodward-Clyde Consultants
201 Willowbrook Boulevard
Wayne, New Jersey

Samples: 1 sump water sample
55 soil samples

Laboratory: Nytest Environmental, Inc.
75 Urban Avenue
Westbury, New York
New Jersey Laboratory Certification #73469

Parameters: PHC, base/neutrals, benzene, toluene and xylene

Sample description: One water sample was collected from a sump installed in the phthalate spill area. The soil samples were collected 0 to 6 inches in depth along the sidewalls and base of the excavation at 20-foot intervals. The samples were collected from the phthalate seep area (Area 1) subareas, B-1, B-2, B-3 and D (B1-1 to B1-18, B2-1 to B2-17, B3-1 to B3-15, and D-1 to D-5).

Contaminants detected: The water sample collected from the sump area SW-1 exhibited a total volatile organic concentration of 62 ppb with xylene making up the majority (48 ppb). Bis(2-ethylhexyl) phthalate was detected at 8,100 ppb, however, this was detected in the field blank at 190 ppb. Of the eight samples analyzed for

REL No 4 0.25

volatile organics only four B1-2, B1-7, B1-8 and B1-10 contained detectable levels. Total volatile organic concentrations ranged from 0.234 ppm (B1-7) to 7.37 ppm (B1-8). Bis(2-ethylhexyl) phthalate was the most common base/neutral detected among the eight samples analyzed for base/neutrals with levels ranging from 9.9 ppm (B2-4) to 1,800 ppm (B1-2). Every sample was analyzed for PHCs. PHCs were detected above the 100 ppm action level in 36 samples with levels ranging from 101 ppm (B2-12) to 1090 ppm (B2-1). A summary of contaminants detected can be found in Table 6.

QA/QC: Trip and field blanks were utilized. Bis(2-ethylhexyl) phthalate was detected in associated blanks. Nytest Environmental, Inc. is a New Jersey certified laboratory.

File location: Attachment JJ
NJDEPE/DRPSR/BEECRA
401 East State Street
Trenton, New Jersey

RECOMMENDATIONS/CONCLUSIONS

Essex has produced adhesives, sealants and strengthening materials on site since 1965. Operations on site have impacted soil, groundwater and surface water. An UST tank farm was removed in January 1983 due to past releases. Monitoring wells have been installed and contaminated soil excavated in conjunction with an on-going NJDEP/DHWM ECRA cleanup. According to a representative of Essex approximately 95 percent of the soil excavation is complete and a groundwater remediation program is planned to be in operation within a year. No sampling is required by the NJDEPE/DRPSR/BSA. No further action under CERCLA is required at this time as the case will remain under State authority for the oversight of the remaining remedial activities.

Submitted by:

Andrew J. Cyr
HSMS IV
Division of Responsible Party Site Remediation
October 24, 1991

TABLE I

**HAZARDOUS SUBSTANCE/WASTE STORAGE AREAS
STORAGE TANK CAPACITY, CONTENTS, AND STATUS
ESSEX SPECIALITY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY**

Location	Tank Number	Capacity In Gallons	Contents	Status
Tank Farm	501			Never Installed
	502	10,000	Texanol Isobutyrate (Black Blend)	Not in use
	503	12,500	Pluracol TP440	Active
	504	10,000	Di alkyl Phthalate (Santicizer 711)	Active
	505	10,000	PX 316 Plasticizer	Active
	506	12,500	Di Isodecyl Phthalate (DIDP)	Active
	507	10,000	Mineral Spirits	Not in use
	508	10,000	Acetone	Not in use
	509	12,500	Toluene	Active
	510	10,000	Reclaimed Solvent	Active
	511	10,000	Methyl Ethyl Ketone (MEK)	Active
	512			Never Installed
Hot Melt Storage Area	522	7,500	Heavy Naphenic Oil (Sun Oil)	Not in use ✓
	275	5,000	Heavy Naphenic Oil (Sun Oil)	Removed
	296	10,000	Process Vessel for Polymer	Not in use ✓
Infern-O-Therm	311	20,000	Hot Melt Product	Not in use ✓
Former Plasticizer Storage Area	219	5,000		Not Used - Removed in 1983
	220	5,000	Di alkyl Phthalate (Santicizer 711)	Removed in 1982
	221	5,000	Escollex Plasticizer 432	Removed in 1982
	245	5,000	Di Isodecyl Phthalate (DIDP)	Removed in 1982
	246	5,000	Di alkyl Phthalate (Santicizer 711)	Removed in 1982

Ref No. 4 P. 27

TABLE 1

**HAZARDOUS SUBSTANCE/WASTE STORAGE AREAS
STORAGE TANK CAPACITY, CONTENTS, AND STATUS
ESSEX SPECIALITY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY**

Raw Materials Storage Area at Southeast Corner of Warehouse	323	9,500	Polyether Polyol	Active
	324	9,500	Polyether Polyol	Active
	325	6,000	Methyl diphenyl diisocyanate	Active
Former UGST Farm	100	3,000	Toluene	Removed in 1983
	101	3,000	Di-2-Ethylhexyl Phthalate (DOP)	Removed in 1983
	102	3,000	Di-2-Ethylhexyl Phthalate (DOP)	Removed in 1983
	103	3,000	Di Isodecyl Phthalate (DIDP)	Removed in 1983
	104	3,000	Di Isodecyl Phthalate (DIDP)	Removed in 1983
	105	3,000	Reclaimed Solvent	Removed in 1983
	106	3,000	Xylene	Removed in 1983
	107	3,000	Reclaimed Solvent	Removed in 1983
	108	5,000	Reclaimed Solvent	Removed in 1983
	109	5,000	Heavy Naphenic Oil (Sun Oil)	Removed in 1983
	110	5,000	Toluene	Removed in 1983
	111	5,000	Heavy Naphenic Oil (Sun Oil)	Removed in 1983
	112	5,000	Reclaimed Solvent	Removed in 1983
	113	7,500	Toluene	Removed in 1983
	114	7,500	Mineral Spirits	Removed in 1983
	115	7,500	Methyl Ethyl Ketone (MEK)	Removed in 1983
	116	1,500	Diesel	Removed in 1983

Table 2

DOW-Sayerville
October 1989 Soil Sample Analysis Results
 (all concentrations reported on a dry weight basis)

Page 1 of 3

Sample Location	R-1A	R-2A	R-3A	R-3B	R-3C	R-4A	R-4B	R-4C
Sample Date	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89
ERM Traffic Report No.	15633	15634	15635	15636	15637	15638	15639	15640
Laboratory I.D. No.	4687	4688	4689	4690	4691	4692	4693	4694
Concentration Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Total Solids (%)	22	21	83	82	72	84	79	77
Base Neutral Organic Compounds								
Fluoranthene	210 J	1800 J		55 J				
Pyrene	200 J	1800 J						
Bis(2-ethylhexyl) phthalate	1800000	1800 J	6500	22000	200 J	79000	8900 J	1100
Di-n-octyl phthalate	3100			30 J				
Acenaphthylene		300 J						
Phenanthrene		900 J						
Anthracene		190 J						
Benzo(a)anthracene		730 J						
Chrysene		1300 J						
Benzo(b)fluoranthene		1600 J						
Benzo(k)fluoranthene		360 J						
Benzo(a)pyrene		1100 J						
Indeno(1,2,3-cd)pyrene		800 J						
Benzo(g,h,i)perylene		820 J						
Di-n-butyl phthalate								
Base Neutral Tentatively Identified Compounds								
Total Unknowns	74000 J	67000 J	3800 J	81 J	22000 J	9800 J	26000 J	9400 J
Total Unknown Hydrocarbons	9700 J	3100 J	J	110 J	1900 J	1300 J	J	730 J
Total Unknown PCB's				3800 J				
Total Unknown Aromatic Hydrocarbons								

Qualifier Codes:

B - This result is qualitatively invalid since this compound was also detected in a blank at a similar concentration.

J - This result is a quantitative estimate.

NA - Not analyzed for this parameter.

ND - none detected.

Note - No concentration is entered for compounds which were not detected.

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 QUALITY ASSURANCE**

David R. Dye 2-15-90
 QAVC MANAGER DATE

Ref. No. 4 0.29

DOW-Sayerville
October 1989 Soil Sample Analysis Results
 (all concentrations reported on a dry weight basis)

Page 2 of 3

Table 2

Sample Location	R-5A	R-5B	R-6A	R-6B	R-6C	R-7A	R-7ADUP	R-7B
Sample Date	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89
ERM Traffic Report No.	15641	15642	15643	15644	15645	15649	15652	15650
Laboratory I.D. No.	4695	4696	4697	4698	4699	4703	4706	4704
Concentration Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Total Solids (%)	82	89	86	51	76	90	90	24
Base Neutral Organic Compounds							180 J	
Fluoranthene							170 J	250 J
Pyrene	210 J	1500	1800	410 J	230 J	320 J		
Bis(2-ethylhexyl) phthalate								
Di-n-octyl phthalate							170 J	640 J
Acenaphthylene								
Phenanthrene								
Anthracene								
Benzo(a)anthracene								
Chrysene								
Benzo(b)fluoranthene				150 J				
Benzo(k)fluoranthene								
Benzo(a)pyrene								
Indeno(1,2,3-cd)pyrene								
Benzo(g,h,i)perylene								
Di-n-butyl phthalate								
Base Neutral Tentatively Identified Compounds								
Total Unknowns	1300 J	1300 J	5900 J	23000 J	5300 J	370 J	150 J	
Total Unknown Hydrocarbons	600 J	74 J	540 J	44000 J	620 J	480 J		
Total Unknown PCB's				26000 J	1600 J			
Total Unknown Aromatic Hydrocarbons								

Qualifier Codes:

B - This result is qualitatively invalid since this compound was also detected in a blank at a similar concentration.
 J - This result is a quantitative estimate.
 NA - Not analyzed for this parameter.
 ND - none detected.
 Note - No concentration is entered for compounds which were not detected.

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David R. Blye 2-15-90
 QA/QC MANAGER DATE

Ref. No. 4 p. 30

Table 2

DOW-Sayerville
October 1989 Soil Sample Analysis Results
 (all concentrations reported on a dry weight basis)

Page 3 of 3

Sample Location	R-7C	R-8A	R-8B	R-8C	R-9A	EB-1	TB-1
Sample Date	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89
ERM Traffic Report No.	15651	15646	15647	15648	15653	15654	15655
Laboratory I.D. No.	4705	4700	4701	4702	4707	4708	4709
Concentration Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/L	µg/L
Total Solids (%)	79	85	57	71	91	NA	NA
Base Neutral Organic Compounds	ND						
Fluoranthene					190 J		
Pyrene		82 J			140 J		
Bis(2-ethylhexyl) phthalate			29000	31000	310 J		
Di-n-octyl phthalate			310 J	1800			
Acenaphthylene							
Phenanthrene		160 J			94 J		
Anthracene							
Benzo(a)anthracene					110 J		
Chrysene					70 J		
Benzo(b)fluoranthene							
Benzo(k)fluoranthene					76 J		
Benzo(a)pyrene					86 J		
Indeno(1,2,3-cd)pyrene					140 J		
Benzo(g,h,i)perylene							
Di-n-butyl phthalate							
Base Neutral Tentatively Identified Compounds						ND	ND
Total Unknowns	3600 J	13000 J	16000 J	16000 J	370 J		
Total Unknown Hydrocarbons	170 J	1800 J	2200 J		510 J		
Total Unknown PCB's							
Total Unknown Aromatic Hydrocarbons	1200 J		15000 J	1900 J			

Qualifier Codes:

B - This result is qualitatively invalid since this compound was also detected in a blank at a similar concentration.

J - This result is a quantitative estimate.

NA - Not analyzed for this parameter.

ND - none detected.

Note - No concentration is entered for compounds which were not detected.

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QUALITY ASSURANCE**

David R. Blye 2-15-90
 QA/QC MANAGER DATE

Ref No. 4 O. 31

Table 3

DOW-Sayerville
December 1989 Soil Sample Analysis Results
 (all concentrations reported on a dry weight basis)

Page 1 of 2

Sample Location	DR-10	DR-11	DR-12	DR-13A	DR-13B	DR-14A
Sample Date	12/7/89	12/7/89	12/7/89	12/7/89	12/7/89	12/7/89
ERM Traffic Report No.	24753	24751	24752	24785	24754	24781
Laboratory I.D. No.	5605	5604	5605	5606	5608	5609
Concentration Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Total Solids (%)	13	78	15	35	70	87
Volatile Organic Compounds	NA	NA	NA	NA	NA	NA
Methylene Chloride						
Chloroform						
Base Neutral Organic Compounds						
Fluoranthene	260 J		740 J	160 J		
Benzo(a)pyrene	400 J		290 J			
Bis(2-ethylhexyl)phthalate		140 J	860 J	18000 J	55 J	270 J
Phenanthrene			450 J	170 J		
Pyrene			570 J	130 J		
Chrysene			380 J	100 J		
Benzo(b)fluoranthene			290 J			
Benzo(k)fluoranthene			340 J	110 J		
Acenaphthylene						
Fluorene						
Anthracene						
Butylbenzyl phthalate						
Benzo(a)anthracene						
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene						
Benzo(g,h,i)perylene						
Di-n-octyl phthalate						
Di-n-butyl phthalate						
Base Neutral Tentatively Identified Compounds						
Ethylbenzene					3200 J	
Dimethyl benzene isomer						
ethylmethyl benzene						
Cineole	11000 J		22000 J			
Total Unknowns	82100 J	2440 J	140800 J	57400 J	17430 J	4710 J
Total Unknown hydrocarbons	18700 J				700 J	420 J
O-Friedelelean-14-en-3-one	6900 J		28000 J	2000 J	1300 J	460 J
naphthalene, 1,2,3,4-tetrahydro-1,8-dimethyl-4-(1-methylethyl)			4800 J			
gamma sitosterol			8500 J			
hexadecanoic acid				2900 J		
hexadecane				2100 J		
unknown Aldehyde				1100 J		190 J
trimethyl benzene isomer						

Qualifier Codes:

B - This result is qualitatively invalid since this compound was also detected in a blank at a similar concentration.

J - This result is a quantitative estimate.

NA - Not analyzed for this parameter.

ND - none detected.

Note - No concentration is entered for compounds which were not detected.

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David R. Blye 2-15-90
 QA/QC MANAGER DATE

Ref. No. 4 P. 32

DOW-Sayerville
December 1988 Soil Sample Analysis Results
 (all concentrations reported on a dry weight basis)

Page 2 of 2

Table 3

Sample Location	DR-14B	DR-14C	DR-15A**	DTB-2	DEB-2
Sample Date	12/7/88	12/7/88	12/7/88	12/7/88	12/7/88
ERM Traffic Report No.	24763	24764	24762	24719	24750
Laboratory I.D. No.	5810	5811	5812	5801	5802
Concentration Units	µg/Kg	µg/Kg	µg/Kg	µg/L	µg/L
Total Solids (%)	68	67	68	NA	NA
Volatile Organic Compounds	NA	NA	NA		NA
Methylene Chloride				12 B	
Chloroform				3 B	
Base Neutral Organic Compounds				NA	ND
Fluoranthene	330 J		68 J		
Benzo(a)pyrene		280 J			
Bis(2-ethylhexyl)phthalate	84000 J	24000 J	1400 J		
Phenanthrene	210 J		40 J		
Pyrene	270 J		58 J		
Chrysene	170 J		47 J		
Benzo(b)fluoranthene	120 J		42 J		
Benzo(h)fluoranthene	180 J		53 J		
Acenaphthylene					
Fluorene					
Anthracene		61 J			
Butylbenzyl phthalate					
Benzo(a)anthracene	87 J				
Indeno(1,2,3-cd)pyrene					
Dibenz(a,h)anthracene					
Benzo(g,h,i)perylene		180 J			
Di-n-octyl phthalate	1000		72 B		
Di-n-butyl phthalate		380 B			
Base Neutral Tentatively Identified Compounds				NA	
Ethylbenzene					8.4 J
Dimethyl benzene isomer		2000 J			38 J
ethylmethyl benzene					21 J
Cineole					
Total Unknowns	15080 J	37820 J	7800 J		
Total Unknown hydrocarbons	3500 J	840 J	860 J		
D-Friedelelean-14-en-3-one	4700 J	880 J	800 J		
naphthalene,1,2,3,4-tetrahydro-1,6-dimethyl-4-(1-methylethyl)					
gamma sitosterol					
hexadecanoic acid					
hexadecane					
unknown Aldehyde					
trimethyl benzene isomer		340 J			

Qualifier Codes:
 B - This result is qualitatively invalid since this compound was also detected in a blank at a similar concentration.
 J - This result is a quantitative estimate.
 NA - Not analyzed for this parameter.
 ND - none detected.
 Note - No concentration is entered for compounds which were not detected.
 ** - Sample is a blind duplicate of DR-14A.

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David R. Bly 2-15-90
 QNQC MANAGER DATE

Ref. No. 4 p. 33

Table-4

Attachment C Soil Sample Descriptions Essex Sayreville Facility

Location	Sample Number	Description
East of Tank Farm	P-10A	Sand - Black, medium grained; Depth - 0" - 6"
East of Tank Farm	P-10B	Sand - Dark gray-brown, fine-grained; Depth - 12" - 18"
East of Tank Farm	P-11A	Sand - Moist, gray-brown, fine-grained; Depth - 0" - 6"
East of Tank Farm	P-11B	Sand - Moist, dark gray-brown, fine-grained; Depth - 12" - 18"
East of Tank Farm	P-12A	Sand - Moist, reddish-brown, fine-grained; Depth 0" - 6"
East of Tank Farm	P-12B	Sand - Dark gray, fine-grained; Depth 12" - 18"
East of Tank Farm	P-13A	Sand - Orange-brown, fine-grained; Depth - 0" - 6"
East of Tank Farm	P-13B	Sand ; Moist, orange-brown, fine-grained; Depth - 12" - 18"
East of Tank Farm	P-14A	Sand - Moist, gray-brown, fine-grained; Depth - 0" - 6"
East of Tank Farm	P-14B	Sand - Moist, medium brown, fine-grained; Depth 12" - 18"
East of Tank Farm	P-15A	Sand - Moist, reddish-brown, with a trace of silt; Depth - 0" - 6"
East of Tank Farm	P-15B	Sand - Moist, gray-brown, fine-grained; Depth - 12" - 18"
East of Tank Farm	P-16A	Sand - Moist, light orange-brown, fine-grained with a trace of clay; Depth - 0" - 6"
East of Tank Farm	P-16B	Sand - Moist, dark brown, fine-grained; Depth - 12" - 18"
East of Tank Farm	P-17A	Sand - Moist, dark brown, fine-grained; Depth - 0" - 6"
East of Tank Farm	P-17B	Sand - Moist, dark brown, fine-grained; Depth - 6" - 12"
East of Tank Farm	P-18A	Sand - Medium brown, fine-grained; Depth - 0" - 6"
East of Tank Farm	P-18B	Sand - Moist, dark grey, fine-grained; Depth - 12" - 18"
North-East of Tank Farm	P-19A	Sand - Moist, dark gray, fine-grained; Depth - 0" - 6"
North-East of Tank Farm	P-19B	Sand - Moist, dark gray, fine-grained; Depth - 12" - 18"
North-East of Tank Farm	P-20A	Sand - Moist, dark gray, fine-grained; Depth - 0" - 6"
North-East of Tank Farm	P-20B	Sand - Moist, dark reddish-brown, fine-grained; Depth - 12" - 18"
North-East of Tank Farm	P-21A	Sand - Moist, dark gray, fine-grained with some roots; Depth - 0" -
North-East of Tank Farm	P-21B	Sand - Moist, dark gray-brown, fine-grained; Depth - 12" - 18"

Table-4

Attachment C
Soil Sample Descriptions
Essex Sayreville Facility

Location	Sample Number	Description
South of Building	P-22A	Sand - Moist, gray-brown, fine-grained; Depth - 0" - 6"
South of Building	P-22B	Sand - Moist, dark gray to black, fine-grained with some roots; Depth - 12" - 18"
South of Building	P-23A	Sand - Moist, medium brown, fine-grained; Depth - 0" - 6"
South of Building	P-23B	No sample collected
South of Building	P-24A	Sand - Moist, medium gray-brown, fine-grained; Depth - 0" - 6"
South of Building	P-24B	Sand - Moist, dark gray to black, fine-grained; Depth - 12" - 18"
South of Building	P-25A	Sand - Moist, medium brown, fine-grained; Depth - 0" - 6"
South of Building	P-25B	No sample collected
South of Building	P-26A	Sand - Moist, gray-brown, fine-grained; Depth 0" - 6"
South of Building	P-26B	Sand - Moist, black, fine-grained; Depth - 12" - 18"
South of Building	P-27A	Sand - Moist, medium brown, fine-grained; Depth - 0" - 6"
South of Building	P-27B	No sample collected
South of Building	P-28A	Sand - Moist, dark gray, fine-grained; Depth - 0" - 6"
South of Building	P-28B	Sand - Moist, dark gray, fine-grained; Depth - 12" - 18"
"Filter Burn" Area	SS-7A	Sand - Moist, medium brown, fine-grained; Depth - 0" - 6"
"Filter Burn" Area	SS-7B	Sand - Moist, medium brown, fine-grained; Depth - 18" - 24"
"Black Stain" Area	SS-8A	Sand - Moist, medium brown, fine-grained; Depth - 0" - 6"
"Black Stain" Area	SS-8B	Sand - Moist, medium brown, fine-grained; Depth - 18" - 24"
UGST Area	SS-9A	Sand - Tan to brown, medium-grained with strong organic odor; Depth - 0" - 6"
UGST Area	SS-9B	Sand - Moist, gray, medium-grained, trace clay; Depth - 60" - 66"
Hot Oil Extractor Area	SS-10	Sand - Tan to black, medium-grained; Depth - 0" - 6"
Hot Oil Extractor Area	SS-13	Sand - Dark gray to black, coarse grained, abundant pebbles; Depth - 0" - 2"

TABLE 5
ESSEX SAYREVILLE
SOIL SAMPLE ANALYSIS RESULTS
COLLECTED MARCH 1990

SAMPLE LOCATION	P-10A	P-10B	P-11A	P-11B	P-12A	P-12B	P-13A	P-13B	P-14A	P-14B
BASE/NEUTRALS (ppb)		NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL) PHTHALATE	2,500J									
DI-N-OCTYL PHTHALATE	330J									
DI-N-BUTYL PHTHALATE	5,200J									
TPH (ppm)	38	39	39	440	13	1,400	110	1,300	90	310

ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration

Ref. No. 4 p. 36

**ESSEX - SAYREVILLE
SOIL SAMPLE ANALYSIS RESULTS
COLLECTED MARCH 1990**

Table 5

Sample Location	P-15A	P-15B	P-16A	P-16B	P-17A	P-17B	P-18A	P-18B	P-19A	P-19B
Sample Date	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90
ERM Traffic Report No.	0120	0121	0122	0123	0124	0125	0126	0127	0128	0129
Matrix	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil
Volatile Organic Compounds (ug/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tentatively Identified Compounds (ug/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (ug/kg)		NA	NA	NA	NA			NA	NA	
Di-n-butyl phthalate						4000 B	880 B			630 B
Bis(2-ethylhexyl)phthalate						37000 J	27000 J			5700 J
Di-n-octyl phthalate							590 J			
Tentatively Identified Compounds (Ug/Kg)		NA	NA	NA	NA			NA	NA	
Total Unknown	7800 J						4200 J			3600 J
Octadecanoic acid deriv.										2100 J
Organic acid										
Unknown alkane	2600 J					2700 J				34000 J
Unknown Phthalate						4000 J				4900 J
Unknown Alkene										
Total Petroleum Hydrocarbons (mg/Kg)	230	170	110	ND	ND	ND	350	ND	390	ND

J - This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration

ND - None detected.

NA - Not analyzed.

Note: No concentration is entered for compounds which were not detected.

Note: All soil results are reported on a dry weight basis.

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David L. [Signature]
DATE

Ref. NO. 4 P. 37

ESSEX - SAYREVILLE
SOIL SAMPLES ANALYSIS RESULTS
COLLECTED MARCH 1990

Table 5

Sample Location	P-20A	P-20B	P-21A	P-21B	P-22A	P-22B	P-23A	P-24A	P-24B	P-25A
Sample Date	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90
ERM Traffic Report No.	0130	0131	0132	0133	0134	0135	0136	0138	0139	0140
Matrix	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil
Volatle Organic Compounds (µg/Kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tentatively Identified Compounds (µg/Kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatle Organic Compounds (µg/Kg)		NA	NA			NA	NA	NA	NA	NA
Di-n-butyl phthalate	1900 B			2100 B	2400 B					
Bis(2-ethylhexyl)phthalate	85 J				130 J					
Tentatively Identified Compounds (µg/Kg)		NA	NA		NA	NA	NA	NA	NA	NA
Total Unknown	9000 J			2100 J	4800 J					
Octadecenoic acid deriv.	2000 J				3900 J					
Organic acid	1800 J			710 J	3000 J					
Unknown alkane	570 J			510 J	560 J					
Unknown alkene	6300 J				950 J					
Benzeneacetic acid	1200 J				610 J					
Unknown phthalate				380 J						
D-Friedoolean-14-en-3-one	570 J				1600 J					
Organic alcohol	2000 J			260 J						
Unknown Alcohol					500 J					
Phoranthrene Deriv.										
Total Petroleum Hydrocarbons (mg/Kg)	ND	ND	ND	ND	ND	65	290	40	ND	250

J - This result is a quantitative estimate.
 B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration
 ND - None detected.
 NA - Not analyzed.
 Note: No concentration is entered for compounds which were not detected.

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David R. Bl... 5-11-90
 QA/QC MANAGER

Ref. No. 4 P. 38

**ESSEX - SAYREVILLE
SOIL SAMPLE ANALYSIS RESULTS
COLLECTED MARCH 1990**

Table 5

Sample Location	P-26A	P-26B	P-27A	P-28A	P-28B	P-29A	P-30
Sample Date	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90
ERM Traffic Report No.	0142	0143	0144	0146	0147	0158	0116
Matrix	soil	soil	soil	soil	soil	soil	soil
Volatile Organic Compounds (µg/Kg)	NA	NA	NA	NA	NA		NA
Methylene chloride						14 B	
Acetone						10	
2-Butanone						15	
Tentatively Identified Compounds (µg/Kg)							
Semivolatile Organic Compounds (µg/Kg)	NA			NA	NA		
Di-n-butyl phthalate		1600 B	3900 B			2700 B	
Bis(2-ethylhexyl)phthalate		90 J	1000 J			710	
Acenaphthene			330 J				
Fluorene			280 J				
Phenanthrene			2400 J				
Anthracene			580 J				
Pyrene			2300 J				
Diethyl phthalate		66 J					
Butylbenzyl phthalate			320 J				
Benzo(a)anthracene			1000 J				
Chrysene			1200 J				
(b)fluoranthene			1700 J				
Tentatively Identified Compounds µg/Kg)	NA			NA	NA		NA
Total Unknown		6400 J				3300 J	
Hexadecanoic acid deriv.		2600 J					
Octadecanoic acid deriv.		2200 J	5400				
Organic acid		10,000 J				1300 J	
Unknown alkane		1100 J	16400 J				
Unknown alkene		2500 J					
D-Friedoolean-14-en-3-one		820 J					
Organic alcohol		6000 J				1100 J	
Unknown Aldehyde		3300 J					
Cycloalkane deriv.		700 J					
Sulfur mol.		1700 J	1100 J				
Unknown Poly Aromatic Hydrocarbon			3400 J				
1-(1,1'-biphenyl)-4-yl-Ethanone						300 J	
Quaterphenyl						400 J	
Total Petroleum Hydrocarbons (mg/Kg)	130	19	1200	ND	19	ND	190

J - This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration

ND - None detected.

NA - Not analyzed.

Note: No concentration is entered for compounds which were not detected.

Note: All soil results are reported on a dry weight basis.

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David R. Gyle 5-1790
QA/QC MANAGER DATE



Ref 1140.36

**ESSEX - SAYREVILLE
SOIL SAMPLES ANALYSIS RESULTS
COLLECTED MARCH 1990**

Table - 5

Sample Location	SS-3	S-2	S-19	S-20	S-21
Sample Date	3/7/90	3/7/90	3/7/90	3/7/90	3/7/90
ERM Traffic Report No.	0181	0182	0166	0167	0168
Matrix	soil	soil	soil	soil	soil
Volatile Organic Compounds (µg/Kg)					
Methylene chloride	9 B	11 B	3 B	5 B	ND
Toluene	21	2 J			
Acetone	50B	24B	61	ND	ND
2-Butanone	41B	36B			
Carbon disulfide	13				48000
meta- + para-Xylene					
Tentatively Identified Compounds (µg/Kg)	ND	ND	ND		6600 J
Ethylmethybenzene				91J	
Total Unlanaous				79J	
Total Unlanaous Hydrocarbon					
Semivolatile Organic Compounds (µg/Kg)					
Di-n-butyl phthalate	14000 B	2100 B	5000 B	9500 J	1100 B
Bis(2-ethylhexyl)phthalate	470000	1200000	980	4400 J	3500
Phenanthrene	2400	5400 J			
Pyrene	20000	25000		3600 J	
Chrysene	8200 J	9200 J		3100 J	
Benzo(b)fluoranthene				4100 J	
Di-n-octyl phthalate	340000	320000			
Fluoranthene	1900 J	2300 J		3400 J	
N-Nitroso Diphenyl amine Semivolatile	3100J				
Tentatively Identified Compounds (µg/Kg)					
Total Unknown	46700J	43400J	11080J	283600 J	67300 J
Hexadecanoic acid deriv.			2230	22200 J	6500 J
Octadecenoic acid deriv.			1400J		
Organic acid			1460		
Hydrocarbon	71000J	63200J			
Total unknown alkene			2800J	23000 J	14500 J
Unknown pthalate	64,400J	306500J			
D-Friedoolean-14-en-3-one					1200
Propanoic acid deriv.		12000J			ND
Sulfur mol.			830J		
Benzene deriv.	11000J				
Phthalic anhydride	6400J	5600J			
Cyclohexane	20300J				
Anthracene deriv.	7500J	16600J			
Pthalic anhydride		5600J			
Stannane, chlorotis		21000J			
Total alkyl benzene		18000J			
1,2,3-Propanetriol			640J		
Total Petroleum Hydrocarbons (mg/Kg)	13000	5300	ND	100	ND

J - This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration.

ND - None detected.

NA - Not analyzed.

Note: No concentration is entered for compounds which were not detected.

Note: All soil results are reported on a dry weight basis.

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David L. Bly 5-17-90



Ref. No. 4 p. 41

**ESSEX - SAYREVILLE
SOIL SAMPLES ANALYSIS RESULTS
COLLECTED MARCH 1990**

Table 5

Sample Location	SS-7A	SS-7B	SS-8A	SS-8B	P-31 (Dup.)
Sample Date	3/6/90	3/6/90	3/6/90	3/6/90	3/7/90
ERM Traffic Report No.	0148	0149	0150	0151	0191
Matrix	soil	soil	soil	soil	soil
Volatile Organic Compounds (µg/Kg)					
Methylene chloride	25 B	11 B		19 B	22 B
Tetrachloroethene	4 J				3 J
Toluene	8 B		2 B		11 B
Acetone	15 B	11 B	6 B	10 B	13 B
2-Butanone	20 B	28 B	14 B	21 B	
Trichloroethene		2 J	3 J	2 J	
Tentatively Identified Compounds (µg/Kg)	NA	ND	ND	NA	ND
Semivolatile Organic Compounds (µg/Kg)					
Di-n-butyl phthalate	3900 B	670 B	470 B	1200 B	1100 B
Bis(2-ethylhexyl)phthalate	7100 J	84 J	140 J	530 J	9000
Di-n-octyl phthalate	2000 J				
Tentatively Identified Compounds (µg/Kg)					
Total Unknown	33000 J	2790 J	4910 J	3470 J	63700 J
Hexadecanoic acid deriv.	13900 J	14500 J	2210 J	9230 J	
Octadecanoic acid deriv.		3900 J		1510 J	
Organic acid		990 J	1060 J	2400 J	
Unknown alkane				750 J	
Unknown alkene	5100 J		3000 J		
Unknown phthalate	11200 J	1100 J	380 J	960 J	
Tetradecadiene		250 J	630 J		
Propanoic acid deriv.		630 J	250 J	480 J	
Sulfur mol.		250 J			
Organic alcohol			250 J	5700 J	
Acetone dimer			690 J		
Cyclo alkane				340 J	
Total Petroleum Hydrocarbons (mg/Kg)	NA	NA	ND	40	120

J - This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration

ND - None detected.

NA - Not analyzed.

Note: No concentration is entered for compounds which were not detected.

Note: All soil results are reported on a dry weight basis.

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QUALITY ASSURANCE**

David R. By 5-17-90
QA/QC MANAGER DATE



Ref. No. 4 p. 41

Table 5

**ESSEX - SAYREVILLE
SOIL SAMPLES ANALYSIS RESULTS
COLLECTED MARCH 1990**

Sample Location	SS-10	SS-9A	SS-11	SS-6	SS-5
Sample Date	3/7/90	3/7/90	3/7/90	3/7/90	3/7/90
ERM Traffic Report No.	0189	0188	0187	185	183
Matrix	soil	soil	soil	solid	soil
Volatile Organics (µg/Kg)					
Methylene chloride	19 B	1800 B	15 B	18 B	18 B
Acetone	13 B	3300 B	11 B	37 B	30 B
2-Butanone	29 B	7800 B	16 B	65 B	40 B
Toluene	6 B	630 B	7 B	17	
Meta-Xylene		17000			
ortho- + para-Xylenes		5600			
Tentatively Identified Compounds (µg/Kg)	ND	ND	ND	ND	ND
Semivolatile Organic Compounds (µg/Kg)					
Di-n-butyl phthalate	1400 B		2000 B	4800 B	4800 B
Bis(2-ethylhexyl)phthalate	3400	36000000	23000	3400000	
Di-n-octyl phthalate		83000	1800 J	2500000	
Fluorene		78 J			1700 J
Phenanthrene		120 J			9700 J
Pyrene		160 J			2100 J
Fluoranthene					12000
Diethyl phthalate					
Tentatively Identified Compounds (µg/Kg)					
Hexanedioic acid deriv.	1300 J		8500 J		
Unknown Phthalate	1600 J	93900 J		2776000 J	
Total Unknown Hydrocarbon	5900 J	1500 J	10000 J		
Octadecenoic acid deriv.					
Organic acid	4320 J				
Total Unknown	19020 J	9280 J	30500 J		
Benzene, methyl	10000 J			87000 J	
	1350 J				
	320 J				
Unknown Aldehyde					
Alkyl Benzene		2300 J			
Bicyclohexyl, phenyl		3900 J			
Sulfur mol.		1000 J			
Stannane				269000 J	
Butylbenzyl phthalate					7000 J
Chrysene					4600 J
Di-n-octyl phthalate					76000
Mono decanoic Acid	1400 J				
Dimethyl benzene		5300 J			4500 J
Propanetriol monoacetate					7900 J
Benzoic Acid Derivative					
Total Petroleum Hydrocarbons (mg/Kg)	110	420	1300	940	1700

J - This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration

ND - None detected.

NA - Not analyzed.

Note: No concentration is entered for compounds which were not detected.

Note: All soil results are reported on a dry weight basis.

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David R. Bly 5-17-90
DATE



Ref No. 40.42

Table 5

ESSEX - SAYREVILLE
SOIL SAMPLES ANALYSIS RESULTS
COLLECTED MARCH 1990

Sample Location	S-22	S-23	SS-12	SS-13	SS-9B
Sample Date	3/7/90	3/7/90	3/7/90	3/15/90	3/15/90
MA Traffic Report No.	169	170	171	195	196
Matrix	soil	soil	soil	soil	soil
Volatile Organics (µg/Kg)				NA	
Methylene chloride	70 B	5 B	3 B		68 B
Acetone		131	69		80 B
Toluene					21 J
Meta-Xylene					10000
ortho- + para-Xylenes					3300
Chloroform			3 J		
Tentatively Identified Compounds (µg/Kg)	ND	ND	ND		ND
Semivolatile Organic Compounds (µg/Kg)					
Di-n-butyl phthalate	980 B	4200 B	1700 B		
Bis(2-ethylhexyl)phthalate	920 J	180000	5400	11000 J	10000000 J
Di-n-octyl phthalate	7400		22000	3200 J	11000 J
Phenanthrene	320 J		150 J		110 J
Pyrene	5600	800 J	2300		
Fluoranthene		1200 J			
Chrysene	970 J	1100 J		830 J	
Tentatively Identified Compounds (µg/Kg)					
Hexanedioic acid deriv.		16000J			
Unknown Phthalate			4900 J		31900 J
Undecenoic acid deriv.		22000J		12000 J	46500 J
Total Unknown	12780 J	24000J	6840 J	28300 J	3600 J
Total Unknown Hydrocarbon	17100 J		18000 J		3400 J
Total Alkyl Benzene	1530 J				
Bicyclohexyl, phenyl		1800J		9500 J	1700 J
Sulfur mol.		31000J			
Benzene, dimethyl	1100 J				
Phthalic anhydride			770 J		
Bicyclohexyl, 4-phenyl			4200 J		
Prpanic acid deriv.			480 J		
Quaterphenyl				20000 J	
Propanetriol monoacetate	2300 J		960 J		
Total Petroleum Hydrocarbons (mg/Kg)	4900	800	2900	NA	300
Metals (µg/Kg)	NA	NA	NA		NA
Arsenic				3400	
Beryllium				570	
Cadmium				3000	
Chromium				16000	
Copper				130000	
Lead				230000	
Mercury				1000	
Nickel				23000	
Zinc				330000	

J - This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a plant at a similar concentration

- None detected.

NA - Not analyzed.

Note: No concentration is entered for compounds which were not detected.

Note: All soil results are reported on a dry weight basis.

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RELEASE BY
QUALITY ASSURANCE

David R. Bly 57790
 QA/QC MANAGER DATE



Ref. No. 4 p. 43

**E-SEX - SAYREVILLE
WATER SAMPLE ANALYSIS RESULTS
COLLECTED MARCH AND APRIL 1990**

Table 5

Sample Location	SW-11	SW-4	SW-3	SW-2	MW-18	MW-1D	MW-2S	SMW-3S	SMW-4S	SMW-107D
Sample Date	3/7/90	3/7/90	3/7/90	3/7/90	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90
ERM Traffic Report No.	180	177	174	175	199	0200	0201	0202	0203	0204
Matrix	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous
Volatle Organic Compounds (µg/L)										
Methylene chloride	10 B	7 B	3 B	11 B	11 B	20 B	11 B	21 B	10 B	6 B
trans-1,2-Dichloroethene	3 J	8	2 J	3 J						
Toluene				6				6 B		
Acetone										
2-Butanone										
Tentatively Identified Compounds (µg/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semivolatile Organic Compounds (µg/L)										
Di-n-butyl phthalate	6 J		44	62	22	22				
Bis(2-ethylhexyl)phthalate		1 J	1 J	1 J	6 J	6 J				
Chrysene										
Naphthalene		2 J	1 J							
N-Nitrosodiphenylamine		67	150	68						
Di-n-octyl phthalate					ND	ND	ND	ND		ND
Tentatively Identified Compounds (µg/L)									13.47	
Total Unknown	19 J	43 J	186 J	122 J						
Unknown alkane		12 J	16 J							
Unknown phthalate		333 J	981 J	969 J						
Sulfur mol.			4 J							
2-Pyrrolidinone		120 J	79 J							
Morpholine			8 J	129 J						
Stannane										
Total Petroleum Hydrocarbons (mg/L)	0.47	3.3	29	18	ND	ND	ND	ND	ND	ND

J - This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration

ND - None detected.

NA - Not analyzed.

Note: No concentration is entered for compounds which were not detected.

**APPROVED FOR
RELEASE BY
QUALITY ASSURANCE**

David K. Gye 5-17-90
QA/QC MANAGER DATE

Ref No. 40.44

**ESSEX - SAYREVILLE
WATER SAMPLE ANALYSIS RESULTS
COLLECTED MARCH AND APRIL 1990**

Table 5

Sample Location	SMW-1AS	SMW-1AD	OW-2S	OW-3S	OW-3D	OW-4S	OW-4D	OW-106S	OW-106D	OW-107S
Sample Date	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90
ERM Traffic Report No.	0205	0206	0207	0208	0209	0210	0211	0212	0213	0214
Matrix	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous
Volatile Organic Compounds (µg/L)										
Methylene chloride		10 B	9 B	21 B	22 B	22 B	10 B	9 B	10 B	22 B 9
Meta-Xylene						3 J				
Trans-1,2-Dichloroethene						ND	ND	ND	ND	ND
Tentatively Identified Compounds (µg/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semivolatile Organic Compounds (µg/L)	ND	ND	ND	ND	ND		ND			
Di-n-butyl phthalate						6 B		4 B		3 B
Bis(2-ethylhexyl)phthalate						ND	ND		ND	
Tentatively Identified Compounds (µg/L)		ND			ND	ND	ND		ND	
Total Unknown	5 J		6 J					6 J		
Sulfur mol.	5 J			4 J						
2-Pentanone, 4,4 dimethyl										5 J
1,3-dimethyl benzene				8 J						5 J
Unknown Alkyl Phenol										
Total Petroleum Hydrocarbons (mg/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

J - This result is a quantitative estimate.
 B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration
 ND - None detected.
 NA - Not analyzed.
 Note: No concentration is entered for compounds which were not detected.

**APPROVED FOR
RELEASE BY
QUALITY ASSURANCE**

David L. Blum 5-17-90
QA/QC MANAGER DATE

Ref. No. 4 P. 45

**ESSEX - SAYREVILLE
WATER SAMPLE ANALYSIS RESULTS
COLLECTED MARCH AND APRIL 1990**

Table - 5

Sample Location	OW-111S	OW-111D	OW-112S	TW-1	EW-1	RC-1A	RC-2A
Sample Date	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90	3/7/90	3/7/90
ERM Traffic Report No.	0215	0216	0219	0217	0218	0164	0165
Matrix	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous
Volatile Organic Compounds (µg/L)							
Methylene chloride	5 B	10 B	9 B	22 B	21 B	10 B	11 B
2-Butanone				5 B	50 B		
ortho- + para-Xylenes						4 J	
Benzene						1 J	
Tentatively Identified Compounds (µg/L)	ND	ND	ND	ND	ND	ND	ND
Semivolatile Organic Compounds (µg/L)							
Bis(2-ethylhexyl)phthalate	8 B	ND	ND	ND	ND	49	2 J
Tentatively Identified Compounds (µg/L)			ND		ND		ND
Total Unknown	13 J			14 J			
Unknown Alkyl Phenol		9 J				8 J	
Benzene, 1,3-dimethyl							
Total Petroleum Hydrocarbons (mg/L)	ND	ND	ND	ND	ND	ND	ND

J - This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration

ND - None detected.

NA - Not analyzed.

Note: No concentration is entered for compounds which were not detected.

**APPROVED FOR
RELEASE BY
QUALITY ASSURANCE**

David R. Blay 5/1/90
QA/QC MANAGER DATE

Ref. No. 4 P. 46

TABLE 6
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ECRA CASE NO. 88904
SUMP WATER SAMPLE
ANALYTICAL RESULTS SUMMARY

Sample ID:	SW-1	FB 3/13	TB 3/13
Sample Date:	3/13/91	3/13/91	3/13/91
Matrix:	water	water	water
ORGANICS:			
Volatile Organic Compounds (Total) (1)	ppb	62	
methylene chloride		2 JB	4 J
2-propanone		2 JB	18
benzene		3 J	
toluene		8	
ethylbenzene		3 J	
xylene		48	
Tentatively Identified Compounds	ppb		
(1) unknown		43 J	
Base Neutral Compounds (Total) (1)	ppb	8162	NR
di-n-butyl phthalate		3 JB	2 JB
bis (2-ethylhexyl) phthalate		8100 B	190 B
di-n-octyl phthalate		62	
Tentatively Identified Compounds	ppb		
(7) unknowns		4 J - 200 J	NR
Acid Extractable Compounds (Total) (1)	ppb		NR
benzoic acid		1 J	
Pesticide/PCBs (Total) (1)	ppb		NR
None			
INORGANICS	ppm		
zinc		0.15	

Notes: (1) = The fraction totals are cumulative values of all analytes in that fraction excluding the analytes which are B - qualified.

B = indicates the analyte is strictly associated with blank (i.e. trip, field or laboratory method blank). As such, the value which is B - qualified is not summed into the total for that particular fraction (i.e. volatile organic compounds (total)). Also, bis (2-ethylhexyl) phthalate which has a value (8100 ug/l) greater than 3 times its associated blank value (190B ug/l) is considered real. As such, the compound is part of the total base neutral summation. NJDEP protocols consider analyte values less than 3 times the associated blank value as rejected (unusable).

J = indicates an estimated value (i.e. value is reported below the CRQL (CRDL)).

NR = not required to be analyzed in accordance with NJDEP field sampling protocols (i.e. trip blank analysis warranted only for the VOA fraction analysis). The writer is also aware, recent promulgation warrants a trip blank to be associated with VOA water samples not VOA soil samples.

TABLE 6
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ECRA CASE NO. 88904
POST EXCAVATION
SOIL SAMPLING ANALYTICAL RESULTS SUMMARY

		Sample ID:	FB 3-19	B1-1	B1-2	B1-3	B1-4	B1-5	B1-6	B1-7	B1-8
		Sample Date:	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91
		Sampling Depth:	-	0.6'	0.6'	0.6'	0.6'	0.6'	0.6'	0.6'	0.6'
		Trench Location:	-	sidewall	base	sidewall	base	sidewall	base	sidewall	base
		Matrix:	water	soil	soil	soil	soil	soil	soil	soil	soil
		Units:	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
		NJDEP ECRA									
		Approved Cleanup Levels (1)									
		PPM									
TOTAL PETROLEUM HYDROCARBONS (4)		Not Specified by NJDEP	< 0.2	88.8	961	147	491	358	259	871	879
ORGANICS:											
Volatile Organic Compounds (Total) (2)		See Note (5)	NR	NR	4.3078	NR	NR	NR	NR	0.234	7.974
benzene					0.070					0.003	0.029
toluene					0.008					0.001 J	0.045
xylene (total)					4.3					0.230	7.300
Base Neutral Compounds (Total) (2)		100 Non-carcinogenic BNs	0.006	NR	1814.18	NR	NR	NR	NR	590.7	902.75
2-methylnaphthalene					0.230 J					0.140 J	0.290 J
dibenzofuran											0.079 J
di-n-butyl phthalate			0.006 J		0.640 J					0.400 J	0.770 J
bis (2-ethylhexyl) phthalate		83			1800 B					590 B	940 B
di-n-octyl phthalate					13						21
naphthalene					0.100 J						0.045 J
acenaphthylene											0.039 J
fluorene											0.110 J
phenanthrene					0.210 J					0.190 J	0.210 J
anthracene											0.077 J
fluoranthene											0.130 J
N-nitrosophenylamine											
pyrene											
Tentatively Identified Compounds (3)											
unknowns					(14) 1.6J - 45J					(14) 1.1J - 10.0J	(14) 1.4J - 17.0J
substituted benzene					(1) 1.6J						1.7 J
substituted naphthalene										1.8 J	

201 NO. 4 0.48

TABLE 6 (CONTINUED)
 ESSEX SPECIALTY PRODUCTS, INC.
 SAYREVILLE, NEW JERSEY
 ECRA CASE NO. 88904
 POST EXCAVATION
 SOIL SAMPLING ANALYTICAL RESULTS SUMMARY

		Sample ID:	B1-9	B1-10	B1-11	B1-12	B1-13	B1-14	B1-15	B1-16	B1-17	B1-18
		Sample Date:	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91
		Sampling Depth:	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"
		Trench Location:	sidewall	base	sidewall	base	sidewall	base	sidewall	base	sidewall	base
		Matrix:	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil
		Units:	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
		NJDEP ECRA										
		Approved Cleanup Levels (1)										
		PPM										
TOTAL PETROLEUM HYDROCARBONS (4)		Not Specified by NJDEP	181	740	280	127	79.0	78.9	136	167	108	408
ORGANICS:												
Volatile Organic Compounds (Total) (2)		See Note (5)	NR	5.95	NR	NR	NR	NR	NR	NR	NR	NR
benzene				0.038								
toluene				0.012								
xylene (total)				5.9								
Base Neutral Compounds (Total) (2)		100 Non-carcinogenic BNs	NR	1100.97	NR	NR	NR	NR	NR	NR	NR	NR
2-methylnaphthalene				0.100 J								
dibenzofuran				0.740 J								
di-n-butyl phthalate				1100 B								
bis (2-ethylhexyl) phthalate		83										
di-n-octyl phthalate												
naphthalene												
acenaphthylene												
fluorene				0.130 J								
phenanthrene												
anthracene												
fluoranthene												
N-nitrosophenylamine												
pyrene												
Tentatively Identified Compounds (3)												
unknowns				(11) 1.2J - 11.0J								
substituted benzene				(4) 1.3J - 7.5J								
substituted naphthalene												

204-NO. 4 P. 49

TABLE 6 (CONTINUED)
 ESSEX SPECIALTY PRODUCTS, INC.
 SAYREVILLE, NEW JERSEY
 ECRA CASE NO. 88904
 POST EXCAVATION
 SOIL SAMPLING ANALYTICAL RESULTS SUMMARY

		Sample ID:	FB 3-13	FB 3-14	B2-1	B2-2	B2-3	B2-4	B2-5	B2-6	B2-7
		Sample Date:	3/13/91	3/14/91	3/13/91	3/13/91	3/13/91	3/13/91	3/14/91	3/14/91	3/14/91
		Sampling Depth:			0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"
		Trench Location:			sidewall	base	sidewall	base	sidewall	base	sidewall
		Matrix:	water	water	soil	soil	soil	soil	soil	soil	so
		Units:	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
		NJDEP ECRA Approved Cleanup Levels (1) PPM									
TOTAL PETROLEUM HYDROCARBONS (4)		Not Specified by NJDEP	<0.2	<0.2	1090	638	1040	824	188	165	337
ORGANICS:											
Volatile Organic Compounds (Total) (2)		See Note (5)	ND	ND	ND	ND	ND	ND	NR	NR	NR
benzene											
toluene											
xylene (total)											
Base Neutral Compounds (Total) (2)		100 Non-carcinogenic DN's		0.020	1423.2	1108.749	27.108	19.7	NR	NR	NR
2-methylnaphthalene											
dibenzofuran			0.008	0.009	1.20	4.60	8.00	9.80			
di-n-butyl phthalate			0.008 JB	0.011	1400	1100	17.0	9.90			
bis (2-ethylhexyl) phthalate		83			22.0	4.00	0.068				
di-n-octyl phthalate											
naphthalene											
acenaphthylene											
fluorene						0.064J	0.500J				
phenanthrene						0.085J	0.920 J				
anthracene											
fluoranthene							0.710 J				
N-nitrosophenylamine											
pyrene											
Tentatively Identified Compounds (3)					(14) 0.51J - 2.8J	(14) 0.68J - 6.7J	(14) 2.8J - 25.0J	(14) 1.6J - 9.5J			
unknowns					(1) 0.630 J	(1) 4.4 J	(1) 22.0J	3.1			
substituted benzene											
substituted naphthalene											

TABLE 6 (CONTINUED)
 ESSEX SPECIALTY PRODUCTS, INC.
 SAYREVILLE, NEW JERSEY
 ECRA CASE NO. 88904
 POST EXCAVATION
 SOIL SAMPLING ANALYTICAL RESULTS SUMMARY

		Sample ID:	B2-8	B2-9	B2-10	B2-11	B2-12	B2-13	B2-14	B2-15	B2-16	B2-17
		Sample Date:	3/14/91	3/14/91	3/14/91	3/14/91	3/14/91	3/14/91	3/14/91	3/14/91	3/14/91	3/14/91
		Sampling Depth:	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"
		Trench Location:	base	base	base	base	base	sidewall	base	sidewall	base	base
		Matrix:	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil
		Units:	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
		NJDEP ECRA										
		Approved Cleanup Levels (1)										
		PPM										
TOTAL PETROLEUM HYDROCARBONS (4)		Not Specified by NJDEP	<100	41.8	181	201	101	139	18.3	81.9	110	244
ORGANICS:												
Volatile Organic Compounds (Total) (2)		See Note (5)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
benzene												
toluene												
xylene (total)												
Base Neutral Compounds (Total) (2)		100 Non-carcinogenic DNIs	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2-methylnaphthalene												
dibenzohuan												
di-n-butyl phthalate												
bis (2-ethylhexyl) phthalate		83										
di-n-octyl phthalate												
naphthalene												
acenaphthylene												
fluorene												
phenanthrene												
anthracene												
fluoranthene												
N-nitrosophenylamine												
pyrene												
Tentatively Identified Compounds (3)												
unknowns												
substituted benzene												
substituted naphthalene												

201 No. 4 p. 51

TABLE 6 (CONTINUED)
 ESSEX SPECIALTY PRODUCTS, INC.
 SAYREVILLE, NEW JERSEY
 ECRA CASE NO. 88904
 POST EXCAVATION
 SOIL SAMPLING ANALYTICAL RESULTS SUMMARY

		Sample ID:	FB 3-18	B3-1	B3-2	B3-3	B3-4	B3-5	B3-6	B3-7	B3-8	B3-9	B3-10
		Sample Date:	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91
		Sampling Depth:		0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"
		Trench Location:		base	sidewall	base	base	base	sidewall	base	base	base	sidewall
		Matrix:	water	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil
		Units:	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
		NJDEP ECRA											
		Approved Cleanup Levels (1)											
		PPM											
		Not Specified by NJDEP	<0.2	36.9	22.8	31	174	<10	39.8	34.9	61.4	140	214
TOTAL PETROLEUM HYDROCARBONS (4)													
ORGANICS:													
Volatile Organic Compounds (Total) (2)		See Note (5)		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
benzene													
toluene													
xylene (total)													
Base Neutral Compounds (Total) (2)		100 Non-carcinogenic BNs	0.018	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2-methylnaphthalene													
dibenzofuran			0.008 J										
di-n-butyl phthalate		83	0.012 B										
bis (2-ethylhexyl) phthalate													
di-n-octyl phthalate													
naphthalene													
acenaphthylene													
fluorene													
phenanthrene													
anthracene													
fluoranthene													
N-nitrosophenylamine													
pyrene													
Tentatively Identified Compounds (3)			0.004 J										
unknowns													
substituted benzene													
substituted naphthalene													

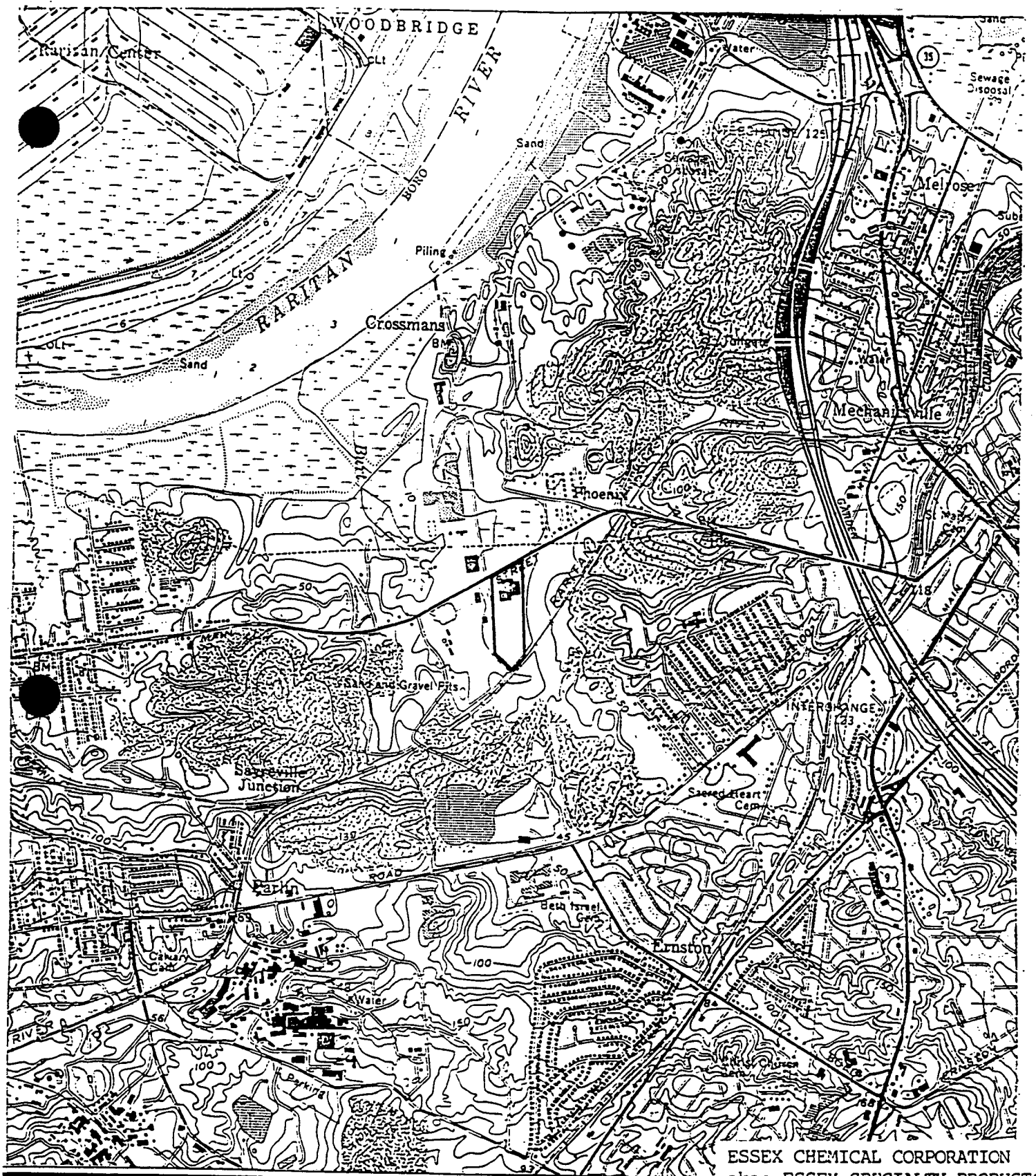
241N04 0.52

TABLE 6 (CONTINUED)
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ECRA CASE NO. 88904
POST EXCAVATION
SOIL SAMPLING ANALYTICAL RESULTS SUMMARY

		Sample ID:	B3-11	B3-12	B3-13	B3-14	B3-15	D-1	D-2	D-3	D-4	D-5
		Sample Date:	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91
		Sampling Depth:	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"
		Trench Location:	base	sidewall	base	sidewall	base	base	sidewall	base	sidewall	base
		Matrix:	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil
		Units:	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
		NJDEP ECRA										
		Approved Cleanup Levels (1)										
		PPM										
			430	314	62.9	116	109	60	68.5	67.4	67.6	120
TOTAL PETROLEUM HYDROCARBONS (4)		Not Specified by NJDEP										
ORGANICS:												
Volatile Organic Compounds (Total) (2)		See Note (5)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
benzene												
toluene												
xylene (total)												
Base Neutral Compounds (Total) (2)		100 Non-carcinogenic BNs	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2-methylnaphthalene												
dibenzofuran												
di-n-butyl phthalate												
bis (2-ethylhexyl) phthalate		83										
di-n-octyl phthalate												
naphthalene												
acenaphthylene												
fluorene												
phenanthrene												
anthracene												
fluoranthene												
N-nitrosophenylamine												
pyrene												
Tentatively Identified Compounds (3)												
unknowns												
substituted benzene												
substituted naphthalene												

Ref. No. 40.53

MAPS



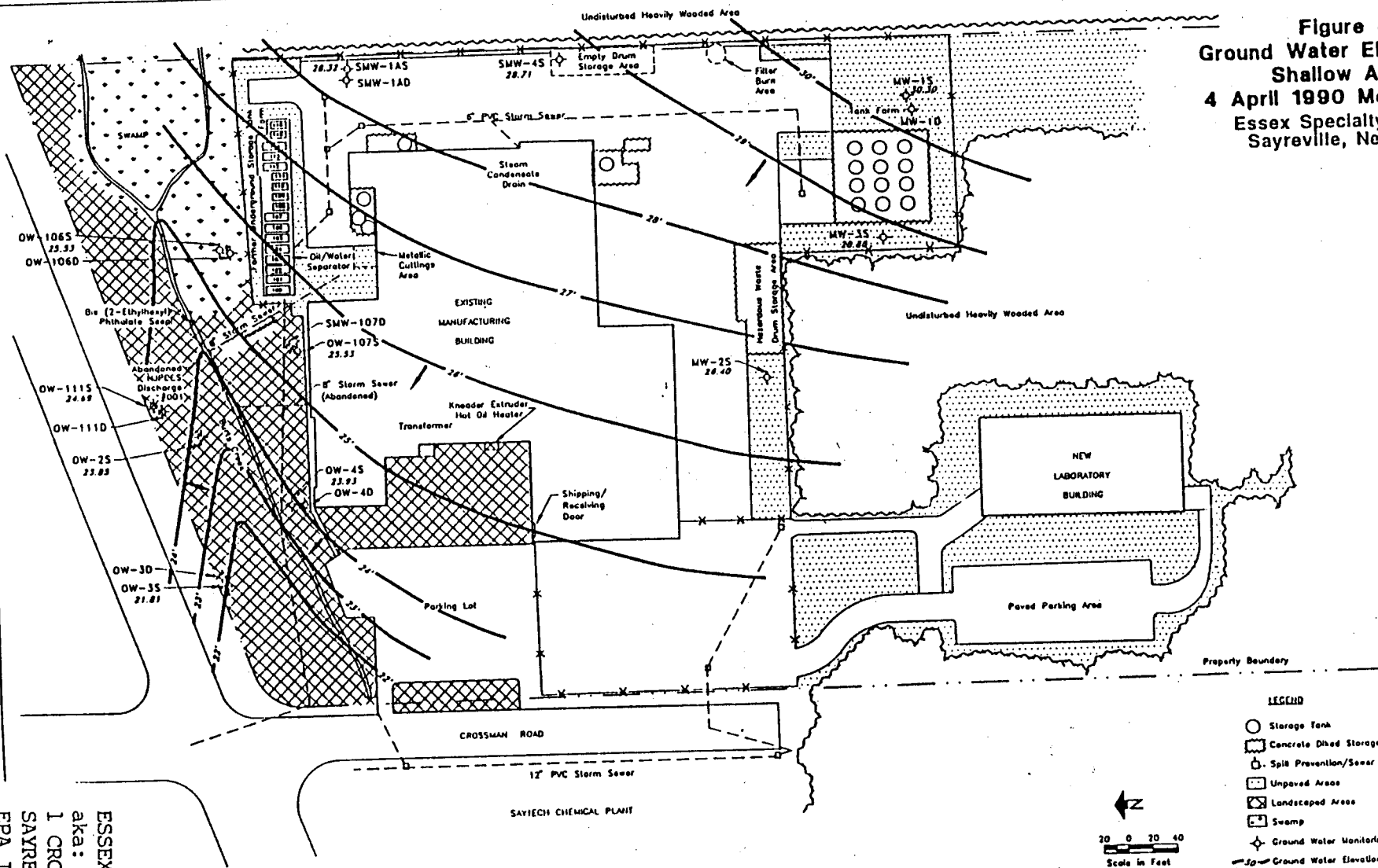
ESSEX CHEMICAL CORPORATION
aka: ESSEX SPECIALTY PRODUCTS
1 CROSSMAN ROAD SOUTH
SAYREVILLE, MIDDLESEX COUNTY
EPA ID# NJD002568715

USGS MAP: SOUTH AMBOY QUAD

LAT: 40 28 27
LONG: 74 19 08
MAP 1

Ref No 4-D-65

Figure 4-1
Ground Water Elevation Map
Shallow Aquifer
4 April 1990 Measurements
Essex Specialty Products
Sayreville, New Jersey



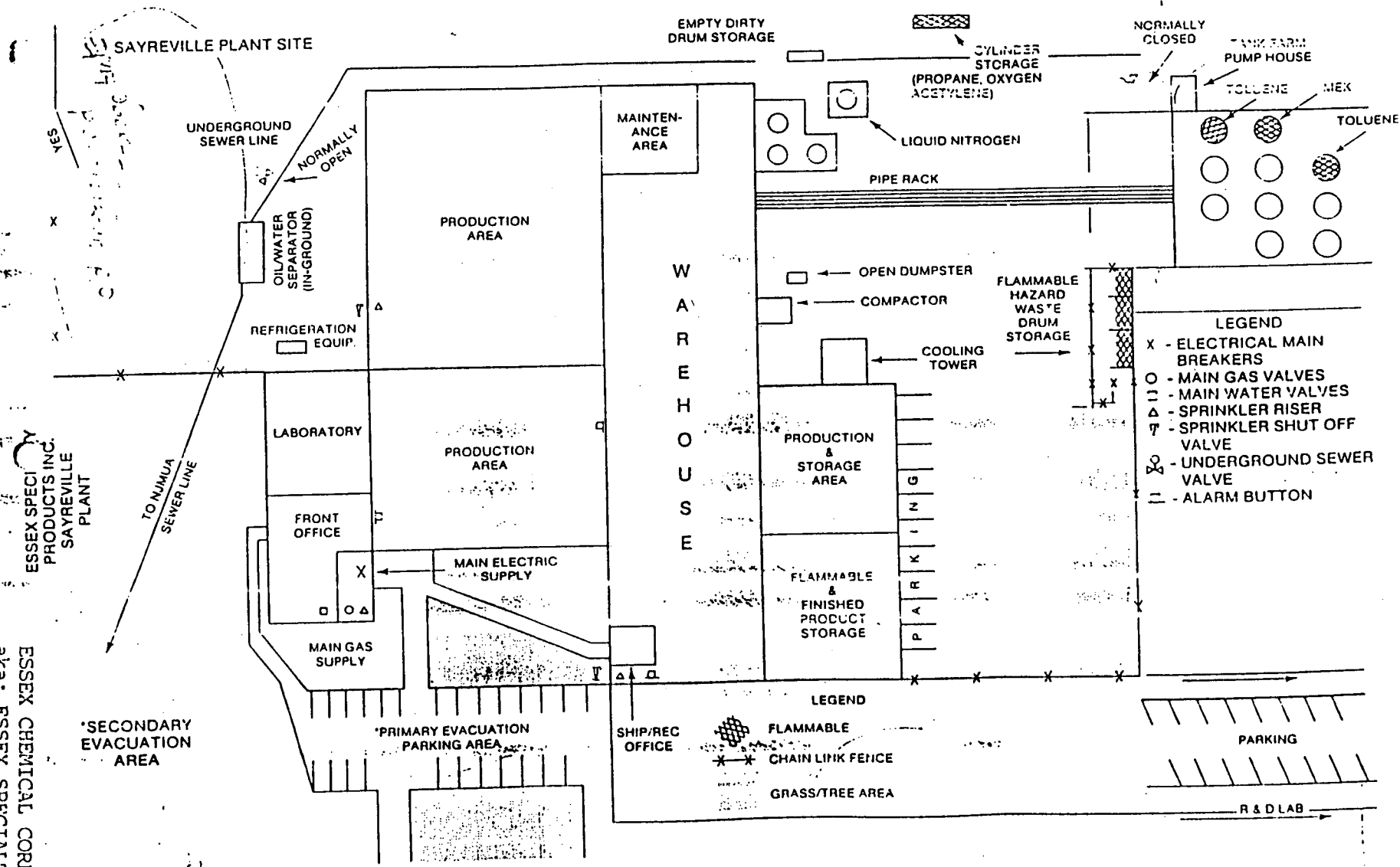
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Revised by/Date: T.Stevens/5.08.90	Checked by/Date:

ESSEX CHEMICAL CORPORATION
aka: ESSEX SPECIALTY PRODUCTS
1 CROSSMAN ROAD SOUTH
SAYREVILLE, MIDDLESEX COUNTY
EPA ID# NJD002568715

SITE MAP 2A

Ref No. 4 p. 56

THE ERM



SITE MAP 2B

201 Nov 4 p. 57

OW-18
OW-19

PREVIOUS LOCATION OF
UNDERGROUND TANK FARM

EXISTING BUILDING

PARKING LOT

OW-46
OW-40

OW-1078

CHAIN LINK FENCE

12 IN DIA STORM
SEWER PIPE

18 IN DIA CORRUGATED
METAL AND FIBER
DRAIN PIPE

OW-1080
OW-1088

OW-30 OW-38

APPROXIMATE LOCATION OF
DRAINAGE DITCH

OW-1118
OW-1119

OW-28

LEGEND
● OW-1118 OBSERVATION WELL LOCATION
AND NUMBER

MAIN STREET

0 20 40 FT
SCALE

MONITORING WELL LOCATION PLAN
ESSEX CHEMICAL CORPORATION
SAYREVILLE, NEW JERSEY

WOODWARD-CLYDE CONSULTANTS

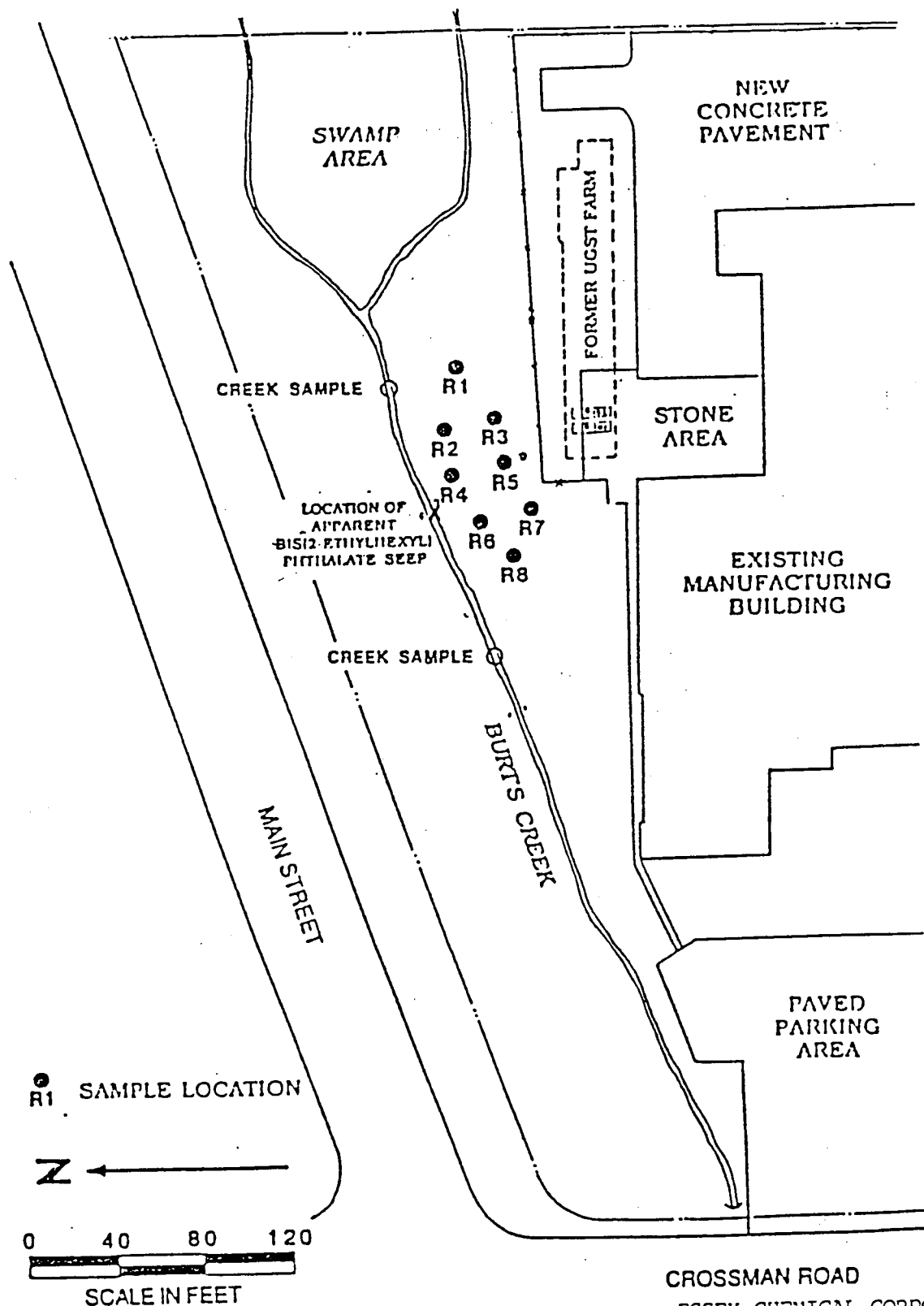
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
WAYNE, NEW JERSEY

DR. BY: DRS	SCALE: AS SHOWN	PROJ. NO.: ETC-601A
CHKD. BY: AGO	DATE: 27 JULY 1983	PAGE NO.: 1

ESSEX CHEMICAL CORPORATION
aka: ESSEX SPECIALTY PRODUCTS
1 CROSSMAN ROAD SOUTH
SAYREVILLE, MIDDLESEX COUNTY
EPA ID# NJD002568715
SITE MAP 2C

Ref. No. 4 P. 58

Figure 2
SEEP AREA SITE MAP
ESSEX SAYREVILLE BOROUGH FACILITY



CROSSMAN ROAD

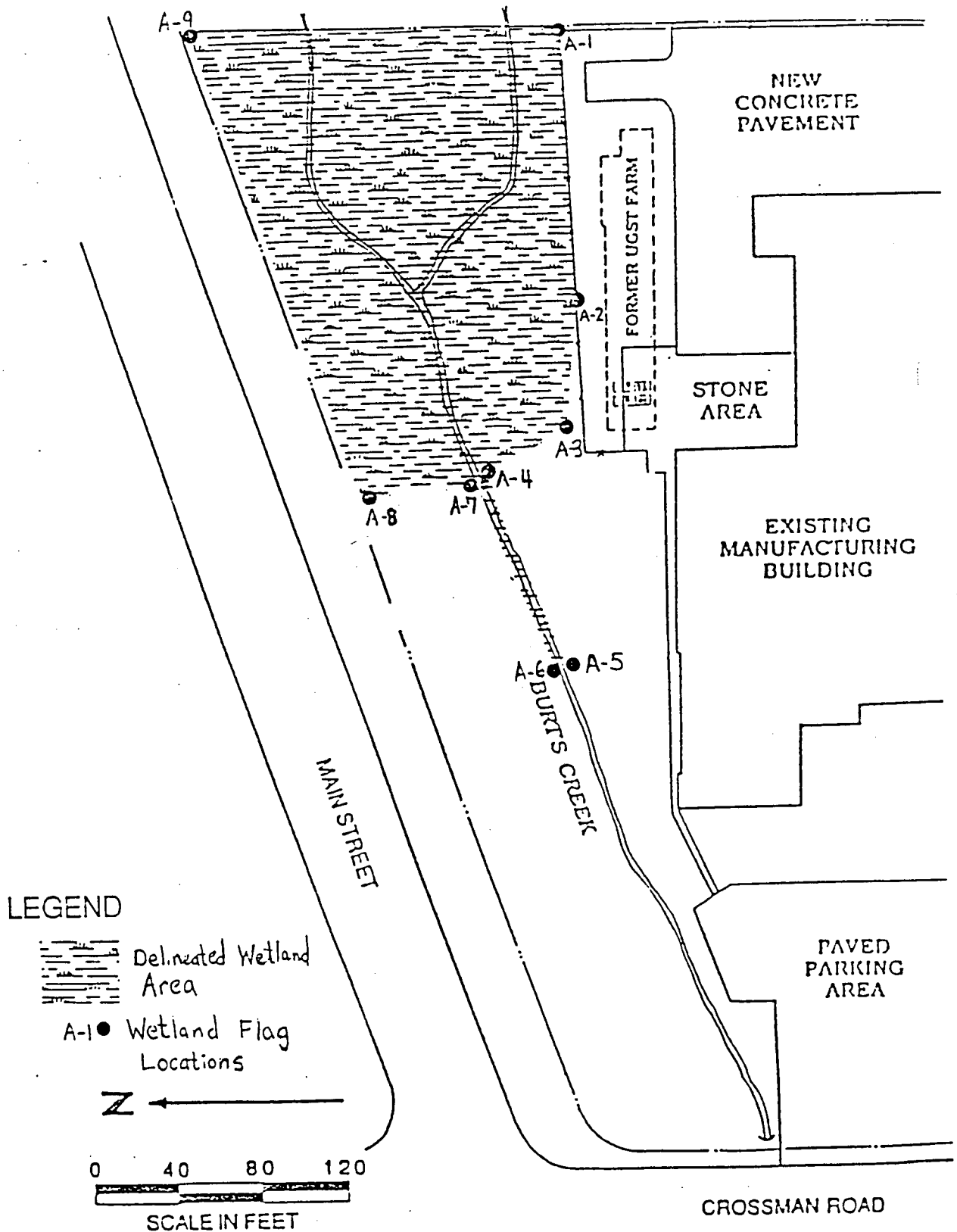
ESSEX CHEMICAL CORPORATION
aka: ESSEX SPECIALTY PRODUC
1 CROSSMAN ROAD SOUTH
SAYREVILLE, MIDDLESEX COUNT
EPA ID# NJD002568715

WOS 780-05	Drawn By/Date: PETER L. SUDANO 8/18/89	Checked By/Date: DREW A. GOULD 8/17/89
	Revised By/Date:	Checked By/Date:

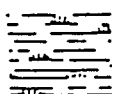
SITE MAP 2D

Ref No 40. 59

Wetland Areas ESSEX SAYREVILLE BOROUGH FACILITY



LEGEND

 Delineated Wetland Area

A-1 • Wetland Flag Locations

 N

0 40 80 120

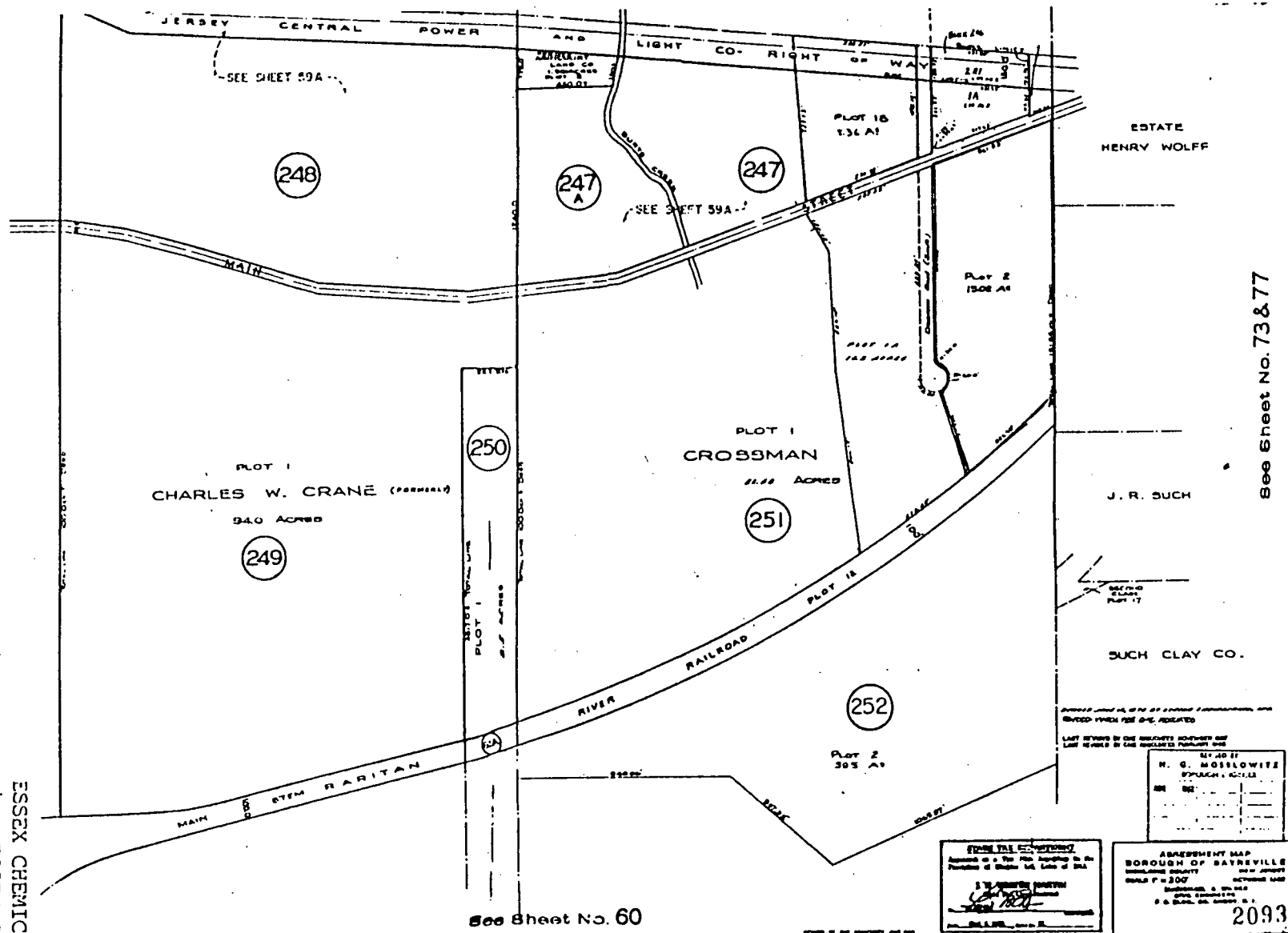
SCALE IN FEET

WOB 780-05	Drawn by/Date: PETER L. SUDANO 8/16/89	Checked by/Date: DREW A. GULD 8/17/89
	Revised by/Date: D. Syneracki 11/14/89	Checked by/Date:

ESSEX CHEMICAL CORPORATION
aka: ESSEX SPECIALTY PRODUCT
1 CROSSMAN ROAD SOUTH
SAYREVILLE, MIDDLESEX COUNTY
EPA ID# NJD002568715

SITE MAP OF 244 No. 4 O. 60

Ref No. P.O. 61



See Sheet No. 72, 72A, 76

2126

IROQUOIS DRIVE

MOHAWK LANE

ADAMS PLACE

CLEVELAND AVE.

JEFFERSON AVE.

TRUMAN AVE.

CHEYENNE SEE SHEET 72-I DRIVE

LONG BOY ROAD



PLOT 1

13.18 ACRES.

366

JACKSON AVENUE

AVENUE

368

LOT 45

368

367

ERNSTON ROAD

PLOT 1

366

SUCH CLAY CO.

7.17 ACRES

367

RAILROAD

368

LOT 1

368

CROSSMAN COMPANY

ESSEX CHEMICAL CORPORATION
aka: ESSEX SPECIALTY PRODUCTS
1 CROSSMAN ROAD SOUTH
SAYREVILLE, MIDDLESEX COUNTY
EPA ID# NJD002568715

SAYREVILLE BOROUGH TAX MAP
1985: BLOCK 366A, LOT 2
MAP 3B

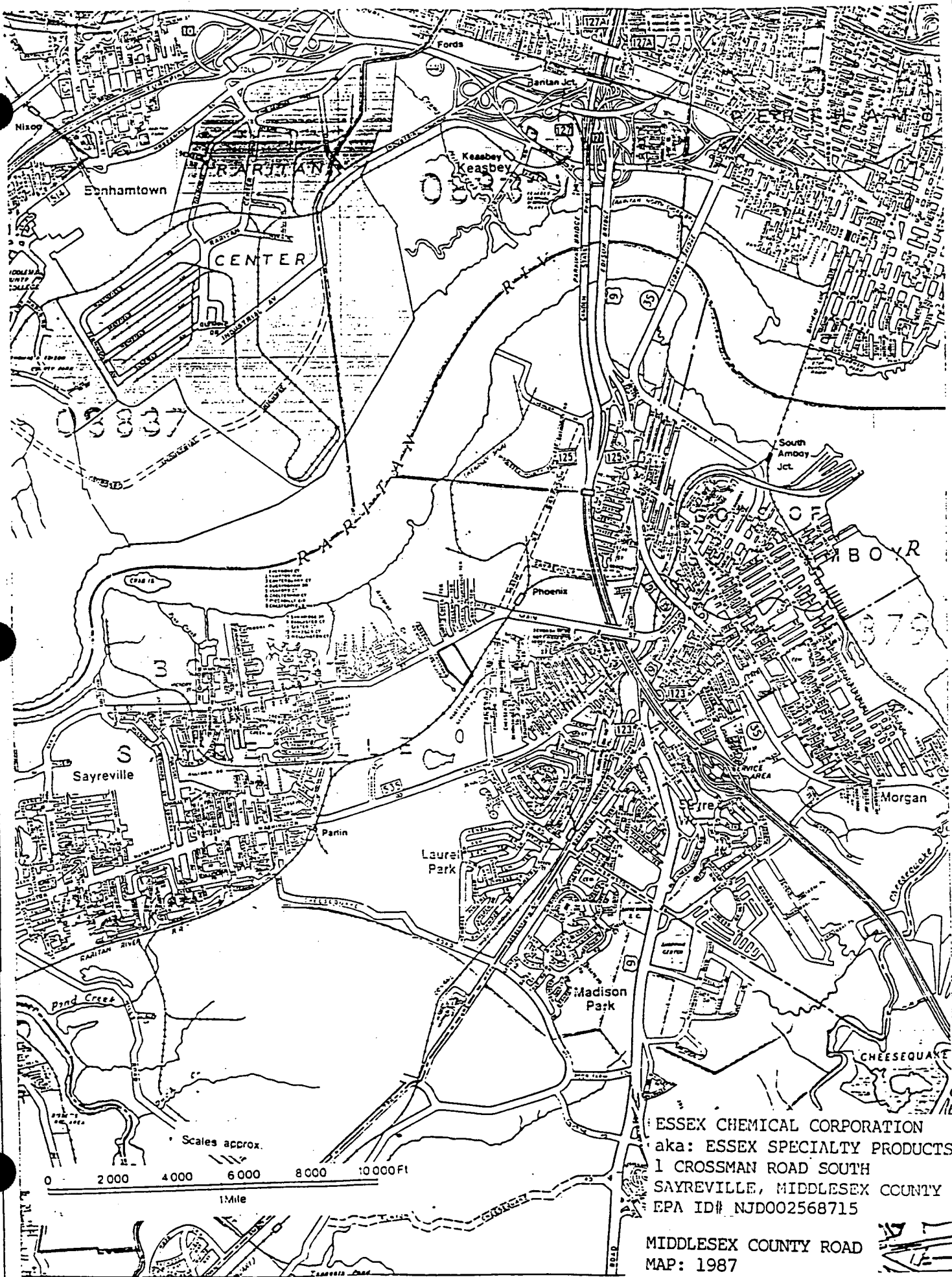
See Sheet No. 73

ESTATE OF HENRY WOLFF

See Sheet No. 78

See Sheet No. 72

2010 11-01-14



ESSEX CHEMICAL CORPORATION
aka: ESSEX SPECIALTY PRODUCTS
1 CROSSMAN ROAD SOUTH
SAYREVILLE, MIDDLESEX COUNTY
EPA ID# NJD002568715

MIDDLESEX COUNTY ROAD
MAP: 1987
MAP 4

Ref. No. 4 O. 63



Scale: 1 Mile to an Inch.
Miles

1000 500 0 Yards 1000 2000 3000 1000 2000 3000 Meters






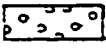
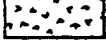




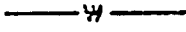
Contour Interval: 20 feet

ESSEX CHEMICAL CORPORATION
aka: ESSEX SPECIALTY PRODUCTS
1 CROSSMAN ROAD SOUTH
SAYREVILLE, MIDDLESEX COUNTY
EPA ID# NJD002568715

NEW JERSEY ATLAS BASE MAP:
SHEETS 25, 26, 28 and 29
MAP 5

Ref. No. 4 p. 64

LEGEND FOR ATLAS SHEET 26

	COUNTY OR STATE BOUNDARY
	MUNICIPAL BOUNDARY
()	POPULATION DENSITY IN PERSONS PER SQUARE MILE
[]	AREA IN SQUARE MILES
%	PERCENT AREA OF MUNICIPALITY ON BLOCK
	DRAINAGE BASIN BOUNDARY
	RIVER BASIN BOUNDARY
HUDSON	DRAINAGE BASIN NAME
	AREA SERVED BY PUBLIC WATER AND SEWAGE SEWAGE
	AREA SERVED BY PUBLIC WATER SUPPLIES ONLY
	AREA SERVED BY SEWAGE SERVICE ONLY
	EXISTING PONDS, LAKES, AND RESERVOIRS
	SANITARY LANDFILLS
	SEWAGE TREATMENT PLANTS
	MAJOR SEWAGE TRANSMISSION LINES
	MAJOR WATER PIPELINES

ALL MAP COORDINATES ARE FOR THE LOWER LEFT HAND CORNER
SCALE 1 INCH = 1 MILE

LEGEND FOR ATLAS SHEET 25 (GEOLOGY)

- △ — INDUSTRIAL WELL YIELD OVER 70 GALLONS PER MINUTE (INCLUDING PRIVATE WELLS)
- — PUBLIC SUPPLY WELL YIELDING OVER 70 GALLONS PER MINUTE
- ⊕ — UNSUCCESSFUL ROCK WELL YIELDING LESS THAN 70 GALLONS PER MINUTE
- ⊙ — UNSUCCESSFUL SAND WELL YIELDING LESS THAN 70 GALLONS PER MINUTE
- ⊞ — NO TEST — NO DATA ON YIELD

- FAULT (DASHED WHERE INFERRED)
- CONTACT (DASHED WHERE INFERRED)
- PHYSIOGRAPHIC PROVINCE BOUNDARY
- WATER SUPPLY TRANSMISSION LINE

NOTE: WHERE THE PRECAMBRIAN FORMATION BOUNDARIES TERMINATE ABRUPTLY, IT IS THE GEOLOGIST'S OPINION THAT THE GEOLOGICAL COMPLEXITY OF THE AREA PREVENTS FURTHER INTERPRETATIONS.

Kmr — CRETACEOUS MAGOTHY AND RARITAN FORMATIONS (SAND AND CLAY)

Tb — TRIASSIC BRUNSWICK FORMATION

Tc — TRIASSIC CONGLOMERATE BEDS OF THE STOCKTON FORMATION

Tl — TRIASSIC LOCKATONG FORMATION

Tdb — TRIASSIC DIABASE

Tbs — TRIASSIC BASALT FLOWS

Sd — SILURIAN DECKER LIMESTONE AND LONGWOOD SHALE FORMATIONS

Sgp — SILURIAN GREEN POND CONGLOMERATE

Omb — ORDOVICIAN MARTINSBURG SHALE

Ok — CAMBRO ORDOVICIAN KITTATINNY LIMESTONE

Ch — CAMBRIAN HARDYSTON SANDSTONE

PRECAMBRIAN:

gh — HORNBLende GRANITE WITH PYROXENE GRANITE

ga — ALASKITE

am — AMPHIBOLITE

px — PYROXENE GNEISS

gnq — QUARTZ PLAGIOCLASE GNEISS

gnb — BIOTITE GNEISS









sk — SKARN, GRAPHITE SCHIST

fnd — FORMATION NOT DETERMINED







Ref No. 4 n. 66

LEGEND






WATER SUPPLY

-  AREA SERVED BY PRIVATE WATER SERVICE COMPANIES
-  AREA SERVED BY REGIONALLY OWNED WATER SERVICE COMPANIES
-  AREA SERVED BY MUNICIPALLY OWNED WATER SERVICE COMPANIES
-  AREA NOT PRESENTLY SERVED BY WATER SERVICE
-  PUBLIC SUPPLY WELLS
-  SURFACE WATER INTAKE
-  MAJOR WATER MAINS
-  WATER MAIN ACROSS HIGHWAY FOR FUTURE USE









SEWAGE, LANDFILL

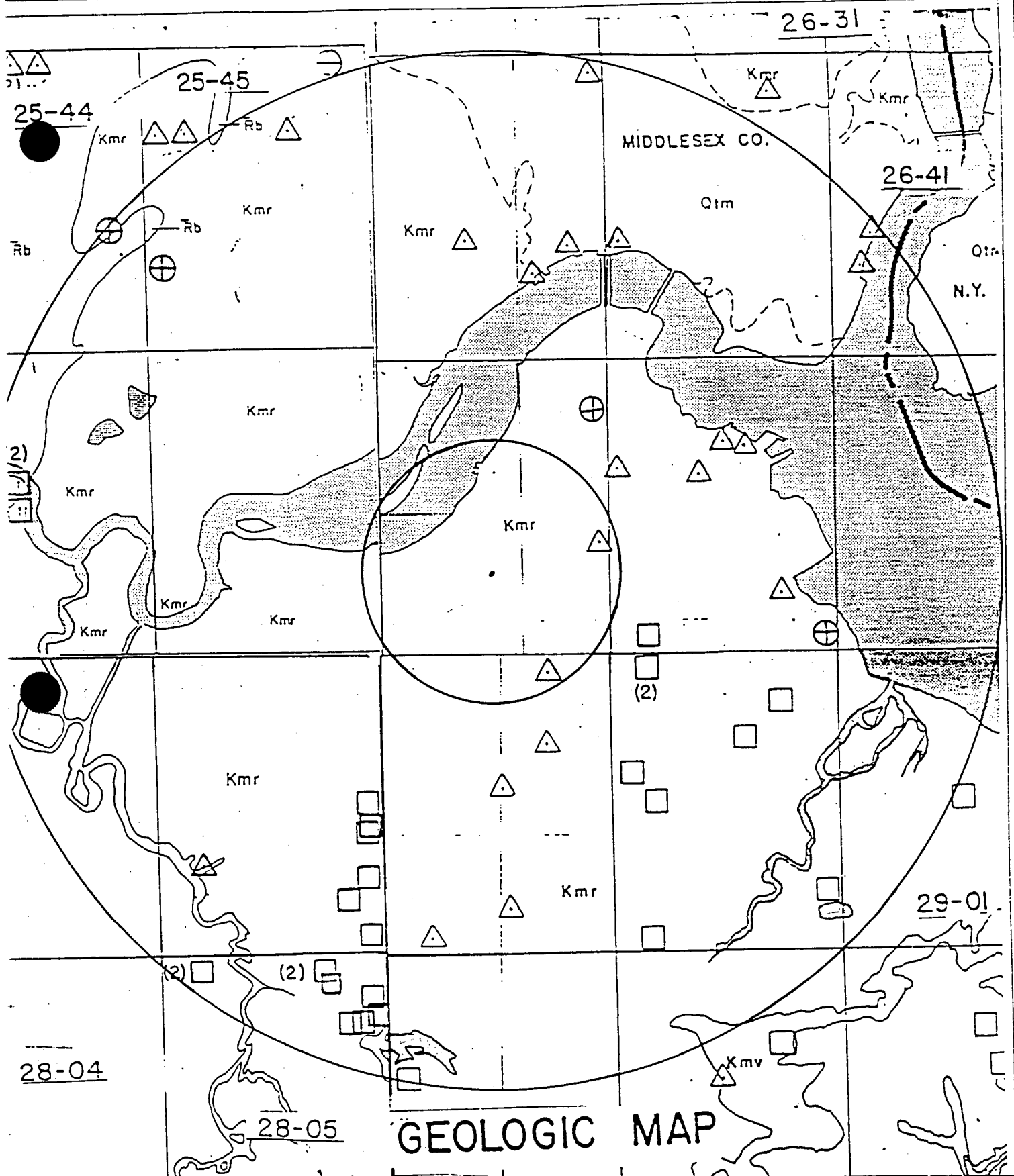
-  AREA SERVED BY PUBLIC SEWAGE SERVICE
-  AREA NOT PRESENTLY SERVED BY SEWAGE SERVICE
-  SANITARY LANDFILLS
-  SEWAGE TREATMENT PLANTS (CAPACITY < 0.3mgd)
-  SEWAGE TREATMENT PLANTS (CAPACITY ≥ 0.3mgd)
-  MAJOR SEWAGE TRANSMISSION LINES

DRAINAGE BASIN

-  DRAINAGE BASIN BOUNDARY
-  RIVER BASIN BOUNDARY
-  DRAINAGE BASIN NAME
-  STREAMS AND RIVERS
-  FLOOD PRONE AREAS

POPULATION

-  COUNTY BOUNDARY
-  MUNICIPAL BOUNDARY
-  POPULATION DENSITY IN PERSONS PER SQUARE MILE
-  AREA IN SQUARE MILES
-  PERCENT AREA OF MUNICIPALITY ON BLOCK
-  MARKET ROADS
-  BUILT UP AREAS
-  STATE BOUNDARY



Scale: 1 Mile to an Inch.
Miles

Yards

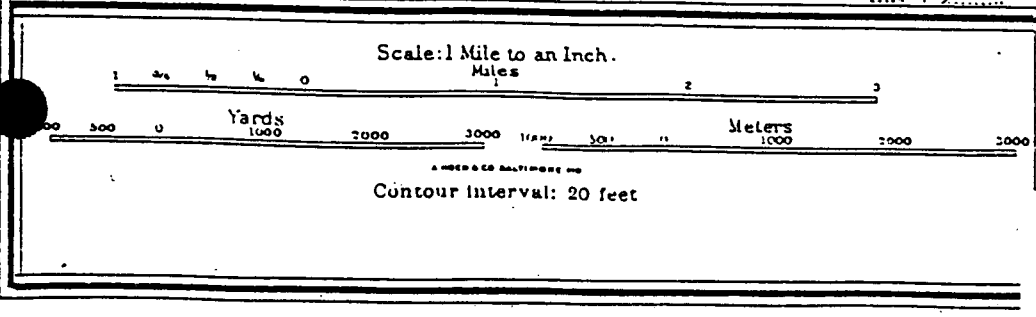
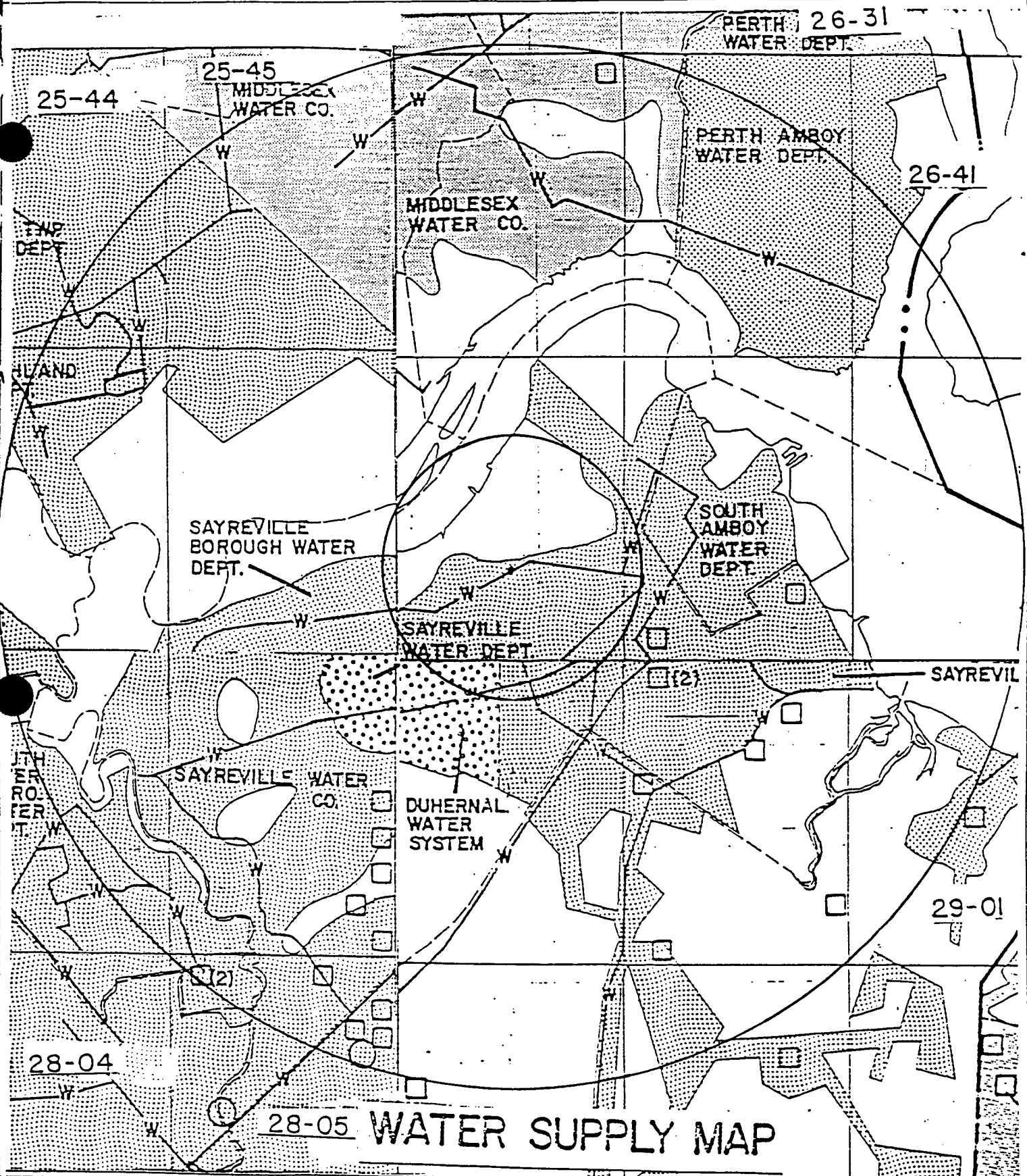
Meters

Contour Interval: 20 feet

ESSEX CHEMICAL CORPORATION
aka: ESSEX SPECIALTY PRODUCTS
1 CROSSMAN ROAD SOUTH
SAYREVILLE, MIDDLESEX COUNTY
EPA ID# NJD002568715

NEW JERSEY ATLAS GEOLOGIC
OVERLAY: SHEETS 25, 26, 28 and 29
MAP 6

Ref. No. 4 p. 68



ESSEX CHEMICAL CORPORATION
 aka: ESSEX SPECIALTY PRODUCTS
 1 CROSSMAN ROAD SOUTH
 SAYREVILLE, MIDDLESEX COUNTY
 EPA ID# NJD002568715

NEW JERSEY ATLAS WATER SUPPLY
 OEVRLAY: SHEETS 25,26,28 and 29
 MAP 7 2 of No. 4 P. 69

A. New Brunswick, Perth Amboy, Plainfield, South Amboy

B. Raritan-Lawrence, Lower Raritan, South River

C. 1. New Brunswick - Recording and non-recording temperature, precipitation and evaporation gauges

3. Map No.	Location	Period of Record
283	Raritan River at New Brunswick (Albany St. Bridge)	1964-
288	Lawrence Brook at New Brunswick Water Dept. Intake, Rt.18	1964-

Water Quality Standards: (explained in Atlas Sheet description) TW1, FW3

D. Magothy and Raritan Formation (Kmr), Brunswick Formation (Trb), Diabase (Trdb)

E. 1. Physiographic Province: Piedmont
 Subdivision: Triassic Lowlands
 Major Topographic Features: Wisconsin Terminal Moraine, Red Sandstone Plain
 Elevations (ft. above sea level): hills 130, valleys 0
 Relief (ft.): 130

Physiographic Province: Coastal Plain
 Subdivision: Inner Plain
 Major Topographic Features: Raritan Estuary, Clay and Marl Region
 Elevations (ft. above sea level): hills 100, valleys 0
 Relief (ft.): 100

2. a. Normal Year: 44"
 Dry Year: 35"
 Wet Year: 50"

b. January: 31°F
 July: 74°F

c. 240 days. Last killing frost: 4/20; first killing frost: 10/15

F. Div. of Water Resources:
 Delaware and Raritan Canal
 Middlesex County:
 Johnson Park

G. U.S. Army:
 USARC and CFMS Camp Kilmer

H. Joyce Kilmer House, New Brunswick (State Owned)
 Ivy Hall, Piscataway
 Efriam Fitz Randolph House, Piscataway
 Metlar House, Piscataway

I. Water Well Records

<u>Location</u>	<u>Owner</u>	<u>Year Drilled</u>	<u>Screen Setting or Depth of Casing</u>	<u>Total Depth</u>	<u>g/m Yield</u>	<u>Format</u>
25-44-237	Ford Motor Co.	1966	38	500	96	Trb
25-44-253	Middlesex Water Co.			566	150	"
25-44-259	Twp. of Raritan			500	115	"
25-44-263	"			476	187	"
25-44-265	"			501	140	"
25-44-268	Ford Motor Co.	1955	37	515	60	"
25-44-285	Twp. of Raritan			452	263	"
25-44-286	"			363	35	"
25-44-295	"			382	275	"
25-44-312	American Cholesterol Co.			525	155	"
25-44-316	John F. Kennedy Hospital	1972	62	140	75	"
25-44-318	Revlon Co.			611	120	"
25-44-321	"			611	205	"
25-44-321	"			510	205	"
25-44-322	Holophane Co.			256	100	"
25-44-342	Twp. of Raritan	1961	41	307	300	"
25-44-344	"			562	75	"
25-44-368	"			457	12	"
25-44-376	"			520	20	"
25-44-422	Johnson & Johnson			250	163	"
25-44-434	Thode's Inc.	1962	39	509	85	"
25-44-445	DuPont deNemours & Co.			506	70	"
25-44-445	"			550	125	"
25-44-446	Richardson Co.			450	100	"
25-44-446	Triangle Conduit & Cable Co.			396	100	"
25-44-446	Rhodia, Inc.	1962	63	400	115	"
25-44-451	Monte Carlo Wine Ind.			332	80	"
25-44-482	Gulbenkian Seamless Rug Co.			650	70	"
25-44-651	Herbert Sand Co.			72	-	Q
25-44-651	"			72	-	"
25-44-654	"			75	-	"
25-45-117	Paraffine Co., Inc.	1959	-	402	100	Kmr
25-45-118	"			417	165	"
25-45-129	Aluminum Co. of America			27	108	Trb
25-45-132	Richmond Radiator Co., Inc.			352	15	Kmr
25-45-171	Raritan Arsenal			375	27	"

J. Geodetic Control Survey monuments described
Index Maps 30, 34, 35

A. Arthur Kill, Elizabeth, Perth Amboy, Roselle

B. Arthur Kill-Morses Creek, Rahway, Woodbridge River; Raritan-Lower Raritan

C. 1. Rahway - Recording and non-recording precipitation gauges

2. Map No.	Location	Period of Record
75	Rahway River at Rahway	1908-1915, 1921-
77	Robinsons Branch Rahway River at Rahway	1939-
3. 75	Rahway River at Rahway	1939-
77	Robinsons Branch Rahway River at Rahway	1964-
273	Rahway River at Rahway, Woodbridge-Hazelhurst Ave.	1964-

Water Quality Standards: (explained in Atlas Sheet description)
FW2, TW2 except where classified FW3 or TW3

D. Wisconsin Terminal Moraine (Qtm), Magothy and Raritan Formations (Kmr),
Brunswick Formation (Trb)

E. 1. Physiographic Province: Piedmont

Subdivision: Triassic Lowlands

Major Topographic Features: Wisconsin Terminal Moraine, Red Sandstone Plain

Elevations (ft. above sea level): hills 150, valleys 0

Relief (ft.): 150

Physiographic Province: Coastal Plain

Subdivision: Inner Plain

Major Topographic Features: Arthur Kill, Clay and Marl Region

Elevations (ft. above sea level): hills 200, valleys 0

Relief (ft.): 200

2. a. Normal Year: 46"

Dry Year: 38"

Wet Year: 52"

b. January: 32°F

July: 74°F

c. 242 days. Last killing frost: 4/20; first killing frost: 10/20

F. Middlesex County:

Merrill Park

Roosevelt Park

Union County:

Rahway River Parkway

Middlesex Water Company:

Private Watershed

A. Arthur Kill, Keyport, Perth Amboy, South Amboy

B. Arthur Kill-Woodbridge River; Atlantic Coastal-Matawan; Raritan-Lower Raritan

C. 2. Map No.	Location	Period of Record
111	Raritan River at Perth Amboy	1966-

3.	111 Raritan River at Perth Amboy	1964-
----	----------------------------------	-------

Water Quality Standards: (explained in Atlas Sheet description)
FW3, TW1 except where classified TW2 or TW3

D. Wisconsin Terminal Moraine (Qtm), Magothy and Raritan Formation (Kmr)

E. 1. Physiographic Province: Coastal Plain

Subdivision: Inner Plain

Major Topographic Features: Clay and Marl Region, Wisconsin Terminal Moraine, Arthur Kill, Raritan Estuary

Elevations (ft. above sea level): hills 150, valleys 0

Relief (ft.): 150

2. a. Normal Year: 44"

Dry Year: 36"

Wet Year: 49"

b. January: 32°F

July: 74°F

c. 242 days. Last killing frost: 4/20; first killing frost: 10/20

H. Westminster House, Perth Amboy (State Owned)
Proprietary House, Perth Amboy

I. Water Well Records

Location	Owner	Year Drilled	Screen Setting or Depth of Casing	Total Depth	g/m Yield	Formation
26-41-133	N.J. Highway Authority	1965	122	140	108	Kmr
26-41-157	Heyden Chemical Co.			50	87	"
26-41-168	Carborundum Co.			80	166	"
26-41-191	General Ceramic Co.			75	130	"
26-41-234	Witco Chemical Co.	1965	100	120	200	"
26-41-247	National Corp.			67	180	"
26-41-348	Standard Underground Cable	1924	85/123	171	458	"
26-41-372	Roessler & Hasslacher	1926	124	164	383	"
26-41-436	Thomas Industries			265	0	Trb
26-41-469	Titanium Pigment Co.			257	265	Kmr
26-41-528	Jersey Central Power & Light	1943	161	?	205	?
26-41-529	"	1972	138	232	305	?
26-41-541	Titanium Pigment Co.			279	830	Kmr
26-41-551	National Lead Co.			375	400	"
26-41-578	City of South Amboy			323	150	"
26-41-594	"	1967	38.5	49	425	"
26-41-599	State Farm Insurance			426	62	"

J. Geodetic Control Survey monuments described
Index Maps 31,35

Ref. No. 4 0.73

A. Freehold, Jamesburg, New Brunswick, South Amboy

B. Raritan-Lawrence, Lower Raritan, South River

C. 2. Map No.	Location	Period of Record.
105	Lawrence Brook at Farrington Dam	1927-
106	Matchaponix Brook at Spotswood	1957-1962
107	Manalapan Brook at Spotswood	1957-
108	South River at Old Bridge	1939-
3. 108	South River at Old Bridge	1964-
289	South River at Old Bridge	1964-
290	South River at South River	

Water Quality Standards: (explained in Atlas Sheet description) FW2

D. Woodbury Clay (Kwb), Merchantville Clay (Kmv), Magothy and Raritan Formation (Kmr), Brunswick Formation (Trb)

E. 1. Physiographic Province: Piedmont
 Subdivision: Triassic Lowlands
 Major Topographic Features: Red Sandstone Plain
 Elevations (ft. above sea level): ridges 120, valleys 20
 Relief (ft.): 100

Physiographic Province: Coastal Plain
 Subdivision: Inner Plain
 Major Topographic Features: Clay and Marl Region
 Elevations (ft. above sea level): ridges 150, valleys 0
 Relief (ft.): 150

2. a. Normal Year: 45"
 Dry Year: 34"
 Wet Year: 51"

b. January: 31°F
 July: 74°F

c. 240 days. Last killing frost: 4/25; first killing frost 10/20

F. Div. of Parks and Forestry:
 Pigeon Swamp
 Middlesex County:
 Tamarack County Golf Course
 Lawrence Brook Reservoir:
 Municipal Watershed
 South River:
 Municipal Watershed

I. Water Well Records

<u>Location</u>	<u>Owner</u>	<u>Year Drilled</u>	<u>Screen Setting or Depth of Casing</u>	<u>Total Depth</u>	<u>g/m Yield</u>	<u>Formation</u>
28-04-249	Firefyter	1956	72/82	82	30	Kmr
28-04-257	"	1962	60/78	200	260	"
28-04-371	Larry J. Smith	1972	139/150	150	60	"
28-04-454	Tamarack Golf Course	1975	87/107	124	302	"
28-04-559	E. Brunswick Twp.	1955	180/220	220	1000	"
28-04-563	Edward Collins	1954	198/223	223	500	"
28-04-575	E. Brunswick Twp.	1975	162/221	221	310	"
28-04-576	"	1975	217/281	319	540	"
28-04-576	"	1975	119/144	201	325	"
28-04-582	Metal Deck, Inc.	1968	200/230	230	300	"
28-04-582	" (Recharge)	1969	203/233	233	60	"
28-04-583	Joseph Konuk	1956	225/245	245	300	"
28-04-695	Kimberly Clark Corp.	1961	235/275	280	1000	"
28-04-698	"	1961	49/59	59	400	"
28-04-698	"	1960	58/68	68	600	"
28-04-698	Anheuser Busch, Inc.	1957	55/70	70	600	"
28-04-699	Kimberly Clark Corp.	1961	53/63	63	500	"
28-04-732	Lawrence Smith	1958	213/223	223	692	"
28-04-751	Mustapha Ahmed	1958	173/208	208	650	"
28-04-814	E. Brunswick Twp.	1975	161/215	215	500	"
28-04-867	Spotswood Boro	1973	63/78	91	509	"
28-04-927	"	1957	64/85	90	400	"
28-04-927	"	1958	62/83	83	700	"
28-04-929	Duhernal Water System	1955	54/64	64	500	"
28-04-931	"	1955	67/77	77	700	"
28-04-987	Reliable Water Co.	1963	131/161	161	500	"
28-04-988	"	1957	143/155	155	188	"
28-05-166	Sayreville Boro	1965	79/93	93	300	"
28-05-169	"	1960	83/94	99	700	"
28-05-172	Sayreville Paper Board	1958	110/120	120	100	"
28-05-193	Sayreville Boro	1960	67/83	83	350	"
28-05-195	"	1960	56/87	87	350	"
28-05-199	"	1965	63/83	83	200	"
28-05-412	South River Boro	1966	189/198	198	175	"
28-05-412	"	1967	160/196	198	1130	"
28-05-431	Sayreville Boro	1965	73/90	90	737	"
28-05-431	"	1967	225/280	280	1000	"
28-05-431	Sunshine Biscuit	1967	160/172	174	65	"
28-05-436	Perth Amboy City	1965	50/80	80	500	"
28-05-438	Perth Amboy Water Co.	1968	201/261	261	1500	"
28-05-439	Perth Amboy City	1955	52/67	69	700	"
28-05-477	Duhernal Water System	1953	55/65	65	483	"
28-05-722	Madison Twp. Mun. Util. Auth.	1972	90/120	120	900	"
28-05-722	"	1972	80/120	120	600	"
28-05-726	Madison Water Co.	1957	280/312	312	500	"
28-05-726	"	1963	266/350	350	500	"

J. Geodetic Control Survey monuments described
Index Maps 34, 35, 38; adjacent Index Map 34

A. Freehold, Keyport, Marlboro, South Amboy

B. Atlantic Coastal-Navesink, Matawan; Raritan-Lower Raritan, South River

C. 2. Map No.	Location	Period of Record
109	Deep Run near Browntown	1933-1940
110	Tennent Brook near Browntown	1933-1941

Water Quality Standards: (explained in Atlas Sheet description)
FW2, TW1 except where classified FW3

D. Red Bank and Tinton Sands (Krb), Navesink Marl (Kns), Mount Laurel and Wenonah Sands (Kmw), Marshalltown Formation (Kmt), Englishtown Sand (Ket), Woodbury Clay (Kwb), Merchantville Clay (Kmv), Magothy and Raritan Formation (Kmr)

E. 1. Physiographic Province: Coastal Plain

Subdivision: Inner Plain

Major Topographic Features: Cheesequake Creek Marsh, Clay and Marl Region

Elevations (ft. above sea level): hills 200, valleys 0

Relief (ft.): 200

2. a. Normal Year: 45"

Dry Year: 35"

Wet Year: 48"

b. January: 32°F

July: 74°F

c. 241 days. Last killing frost: 4/20; first killing frost: 10/20

F. Div. of Parks and Forestry:

Cheesequake State Park

Perth Amboy Waterworks:

Municipal Watershed

I. Water Well Records

<u>Location</u>	<u>Owner</u>	<u>Year Drilled</u>	<u>Screen Setting or Depth of Casing</u>	<u>Total Denth</u>	<u>g/m Yield</u>	<u>Formation</u>
29-01-131	E.I. duPont de Nemours & Co.	1966	281/236	287	90	Kmr
29-01-137	"	1955	74/79	81	100	"
29-01-155	"	1954	97/117	113	450	"
29-01-178	C.P.S. Chemical Co.	1972	64/75	75	132	"
29-01-185	Manzo Const. Co.	1965	94/114	114	65	"
29-01-212	N.J. Hwy. Auth.	1954	92/122	308	199	"
29-01-212	"	1954	91/112	243	199	"
29-01-229	Sayreville Boro	1967	254/288	288	1218	"
29-01-234	"	1966	238/248	248	100	"
29-01-241	Hope Park Homes, Inc.	1956	167/177	181	120	"
29-01-245	T.S. Evans Const. Co.	1962	180/195	195	130	"
29-01-277	Vincent Nivickas	1969	213/228	228	100	"
29-01-278	Midtown Water Co.	1956	266/306	311	1227	"
29-01-296	N.J. Dept. of Cons.	1957	299/320	322	360	"
29-01-356	Lawrence Harbor Water Co.	1954	360/395	400	703	"
29-01-398	Matawan Twp.	1958	447/487	487	700	"
29-01-398	"	1965	422/457	457	1007	"
29-01-441	Madison Twp. Mun. Util. Auth.	1972	250/292	293	363	"
29-01-537	Westbury Water Co.	1956	246/265	265	115	"
29-01-552	Gulf Oil Co.	1958	103/113	113	65	"
29-01-595	Madison Twp. Bd. of Ed.	1971	173/193	195	151	"
29-01-629	Matawan Boro	1967	213/267	267	703	"
29-01-661	"	1956	213/267	271	726	"
29-01-713	Madison Twp. Mun. Util. Auth.	1972	321/363	363	285	"
29-01-731	"	1966	425/475	475	1000	"
29-01-731	"	1966	435/480	480	1000	"
29-01-732	Madison Twp. Bd. of Ed.	1963	184/204	205	300	"
29-01-732	Browntown Water Co.	1959	178/249	248	750	"
29-01-732	"	1961	188/250	250	750	"

J. Geodetic Control Survey monuments described
Index Maps 35, 38, 39

1. SURFACE WATER SURVEY OF WATER WITHIN 100 FEET WITHIN 5.0 MILES OF 402927 LAT. 741956 LONG. (IN ORDER BY PERMIT NUMBER) - 10/11/79

WELL NO.	NAME	SOURCE	LOCID	LAT	LONG	LLAZ	DISTANCE	COUNTY	PLN	DEPTH	QSD1	QSD2	QSD3
100-40	HERCULES INCORPORATED		#1	402905	742023	T	1.9	23	19	225	G-RF		800
	HERCULES INCORPORATED		#2	402859	742020	T	2.0	23	19	237	G-RF		1000
	HERCULES INCORPORATED		#3	402849	742025	T	2.2	23	19	220	G-RF		1000
	HERCULES INCORPORATED		#5	402838	742022	T	2.3	23	19	232	G-RF		1185
	HERCULES INCORPORATED		#7	402903	741651	T	2.3	23	20	165	G-RF		350
100-50	J. C. P. LAMER STATION	2501475											
100-50	AMERICAN METAL BUILDING CO.	2521985	3	402820	742410		6.3	23	05	500	GTRB		400
	AMERICAN METAL BUILDING CO.	2522202											
100-50	AMERICAN LYNARD COMPANY	2501329	2	402827	741615	U	5.4	23	25	62	G-R		120
110-50	NORTH JERSEY ENERGY ASSOCIATES	POWER PLANT	WELL POINT	402820	742020	T	2.3	23	19	8	G-RFB		500
200-50	INDUSTRIAL INDUSTRIES	2512712	MI-T1	402808	741936	F	2.7	23	09	44	G-RFB		120
200-50	GIST-BROOKES FOOD INGREDIENTS	2312559	10	402857	742158	F	5.1	23	04	60	G-RFB		250
	GIST-BROOKES FOOD INGREDIENTS	402859	1	402859	742158	F	5.1	23	04	72	G-RFB		500
	GIST-BROOKES FOOD INGREDIENTS	2312559	5	402859	742158	F	5.4	23	04	71	G-RFB		500
	GIST-BROOKES FOOD INGREDIENTS	2312559	8	402859	742158	F	5.4	23	04	60	G-RFB		500
	GIST-BROOKES FOOD INGREDIENTS	2312559	9	402859	742158	F	5.4	23	04	70	G-RFB		500
	GIST-BROOKES FOOD INGREDIENTS	2312559	5	402859	742158	F	5.4	23	04	267	G-RF		1000
	GIST-BROOKES FOOD INGREDIENTS	2312559	5	402859	742158	F	5.4	23	04	260	G-RF		1000
	GIST-BROOKES FOOD INGREDIENTS	2312559	7	402859	742158	F	5.4	23	04	260	G-RF		1000
200-50	UNITED STATES GASH COMPANY	4500076	1	402859	741829		4.0	23	02	505	GTRB		500
200-50	HLS AMERICA	4500053	1	402859	742210		3.1	23	05	100	GTRB		60
200-50	HLS AMERICA	4500054	2	402859	742210		3.1	23	05	100	GTRB		60
	HLS AMERICA	4500055	3	402859	742210		3.0	23	05	100	GTRB		112
200-50	CIEMEN LCA, INC.	4500185	1	402159	741803	F	4.7	23	16	84	G-RF		300
	CIEMEN LCA, INC.	4500186	2	402159	741817	F	4.7	23	16	104	G-RF		350
200-50	HERBERT SAND CO., INC.	2504007	1 INFIL GA	402859	742251	F	4.1	23	04	18	G-RF		210
	HERBERT SAND CO., INC.	4500199	2 INFIL GA	402859	742241	F	4.0	23	04	14	G-RF		400
200-50	ANGIOL CORP.	2504515	1	402159	742340		5.5	23	05	525	GTRB		150
200-50	KIMBERLY-CLARK CORPORATION	2510665	11	402411	742225	F	5.7	23	24	63	G-RFB		350
	KIMBERLY-CLARK CORPORATION	2504387	9	402411	742220	S	5.6	23	24	63	G-RFB		500
	KIMBERLY-CLARK CORPORATION	2510177	10	402411	742212	S	5.6	23	24	73	G-RFB		500
	KIMBERLY-CLARK CORPORATION	2505670	3-R	402406	742219	F	5.7	23	24	68	G-RFB		500
	KIMBERLY-CLARK CORPORATION	4500004	7	402408	742228		5.7	23	24	75	G-RFB		700
200-50	MADISON INDUSTRIES	2522605	FW-3	402501	741947	S	2.9	23	09	63	G-RFB		50
	MADISON INDUSTRIES	2524464	FW-4	402502	741947	S	2.9	23	09	68	G-RFB		200
200-50	OPS CHEMICAL CO., INC.	2522917	FW-1	402525	741945	S	3.0	23	09	70	G-RFB		200
	OPS CHEMICAL CO., INC.	2522918	FW-2	402529	741953	S	3.1	23	09	50	G-RFB		200
	OPS CHEMICAL CO., INC.	2507557	FW-1	402560	741937	F	2.7	23	09	75	G-RFB		50
	OPS CHEMICAL CO., INC.	2508170	FW-2	402560	741937	F	2.8	23	09	68	G-RFB		50
40-50	PUBLIC SERVICE ELECTRIC & GAS	SILVER LAKE		402525	742745	T	4.7	23	05	5	SE		2000
50-50	PERIN AMBOY CITY	2512579	5	402502	741952	F	3.5	23	09	80	G-RFB		550
	PERIN AMBOY CITY	2512581	6	402503	741945	T	3.5	23	09	100+	G-RFB		700
	PERIN AMBOY CITY	2512582	7	402503	741938	T	3.5	23	09	100+	G-RFB		750
	PERIN AMBOY CITY	2512583	8	402503	741918	T	3.5	23	09	100+	G-RFB		2000
	PERIN AMBOY CITY	4025000	WELLS	402500	741940	U	3.4	23	09		G-RFB		
	PERIN AMBOY CITY	2506200	15	402507	742000	T	3.4	23	09	261	G-RF		1550
	PERIN AMBOY CITY	2318359	001	402505	742005	T	4.2	23	09	74	G-RFB		200
51-50	SOUTH AMBOY WATER DEPT.	2504075	10	402503	741632	U	2.1	23	19	48	G-RFB		400
	SOUTH AMBOY WATER DEPT.	2504812	9A	402503	741637	U	2.2	23	19	58	G-RFB		450
	SOUTH AMBOY WATER DEPT.	4504144	8	402507	741630	U	2.2	23	19	237	G-RF		1000
51-50	EAST BRUNSWICK TOWNSHIP	2500191	1	402502	742441	F	6.2	23	04	228	G-RF		0
	EAST BRUNSWICK TOWNSHIP	4500014	3	402450	742443	F	5.4	23	04	241	G-RF		0
51-50	SOUTH RIVER TOWNSHIP	2500722	2	402505	742132	F	3.5	23	23	198	G-RF		1000
	SOUTH RIVER TOWNSHIP	2507722	5	402503	742139	F	3.6	23	23	187	G-RF		900
	SOUTH RIVER TOWNSHIP	2511524	6	402505	742135	F	3.9	23	23	213	G-RF		800
	SOUTH RIVER TOWNSHIP	4500011	BRIDGE	402505	742135	F	3.9	23	23	23	G-RFB		500
52-50	SOUTH RIVER TOWNSHIP WATER DEPT.	2500001	1	402505	741422		5.0	23	20	487	G-RF		700

Ref No. 4 D. 79

PERMIT	NAME	SOURCEID	LOCID	LAT	LON	LLAND	DISTANCE	COUNTY	MUN	DEPTH	GEOL	RESC	CAPACITY
	AMERDENT TOWNSHIP WATER DEPT.	2904541	2	402904	741417		5.0	25	30	457	G R F		1000
	AMERDENT TOWNSHIP WATER DEPT.	2904540	3	402610	741351		5.3	25	30	473	G R F		1000
- 5310	SAYREVILLE BOROUGH	2905232	MIRIAM P	402744	741628		2.5	23	19	238	G R F		1200
	SAYREVILLE BOROUGH	2905043	0-1973	402745	741631		2.4	23	19	247	G R F		500
	SAYREVILLE BOROUGH	2910500	R	402745	741645		2.2	23	19	116	G R O B		400
	SAYREVILLE BOROUGH	2910499	S	402745	741645		2.2	23	19	291	G R F		1250
	SAYREVILLE BOROUGH	2911861	T	402738	741700		2.1	23	19	141	G R O B		400
	SAYREVILLE BOROUGH	2903215	A	402614	741950		2.6	23	19	758	G R O B		750
	SAYREVILLE BOROUGH	2903213	B	402604	742004		2.9	23	19	90 7	G R O B		700
	SAYREVILLE BOROUGH	2903216	C	402612	742010		2.7	23	19	73	G R O B		350
	SAYREVILLE BOROUGH	2903214	D	402618	741952		2.5	23	19	75	G R O B		350
	SAYREVILLE BOROUGH	2903206	E	402619	741952		2.6	23	19	62	G R O B		350
	SAYREVILLE BOROUGH	2903296	F	402614	741953		2.6	23	19	74 4	G R O B		350
	SAYREVILLE BOROUGH	2903257	G	402620	741944		2.4	23	19	87	G R O B		350
	SAYREVILLE BOROUGH	2903254	H	402630	741949		2.3	23	19	83	G R O B		350
	SAYREVILLE BOROUGH	2903295	I	402625	741936		2.4	23	19	98 8	G R O B		700
	SAYREVILLE BOROUGH	2903254	K	402617	741945		2.5	23	19	90 2	G R O B		325
	SAYREVILLE BOROUGH	2903257	L	402634	741939		2.4	23	19	93	G R O B		500
	SAYREVILLE BOROUGH	2903195	RED EGI M	402609	741952		2.7	23	19	290	G R F		1000
5320	NATAWAN BOROUGH	2901731	3	402518	741450		5.2	25	19	271	G R O B		700
	NATAWAN BOROUGH	2905288	4	402518	741447		5.2	25	20	281	G R O B		700
5337	NEW BRUNSWICK, CITY OF	LAWRENCE BROOK	INTAKE 1A	402900	742443	F	4.9	23	14		SFLAW		7300
	NEW BRUNSWICK, CITY OF	LAWRENCE BROOK	INTAKE 1B	402900	742443	F	4.9	23	14		SFLAW		4000
	NEW BRUNSWICK, CITY OF	LAWRENCE BROOK	INTAKE 1C	402900	742443	F	4.9	23	14		SFLAW		6250
	NEW BRUNSWICK, CITY OF	LAWRENCE BROOK	INTAKE 1D	402900	742443	F	4.9	23	14		SFLAW		1010
- 5340	OLD BRIDGE MIA	2900022	8	402700	741450	T	4.1	23	09	218	G R O B		350
	OLD BRIDGE MIA	2900748	9	402705	741440	T	4.2	23	09	400	G R F		350
	OLD BRIDGE MIA	2900449	SR	402510	742008	U	3.9	23	09	371	G R F		350

Number of Observations: 83

Ref. NO. 4 p. 80

Page 1 of 1005 CASE INDEX SITES WITHIN 5.0 MILES OF 402327 LAT. 741902 LON. AS OF 12/22/87 (IN ORDER BY SITE NUMBER) - (5/22/91)

SITE#	NAME	LAT	LOI	DISTANCE	COUNTY	RHODE1	RHODE2	STATUS1	STATUS2
70	SAYTECH (FORMALLY HEXCELL), SAYREVILLE, MIDDLESEX CO.	402327	741905	0.0	50	2090	0	9	
110	VALMET PROCESSING OF N.J., SAYREVILLE, MIDDLESEX CO.	402350	742107	2.5	35	2093	2095	1	
158	SCHIAVANO RESIDENCE, WOODBRIDGE, MIDDLESEX CO.	403126	741753	3.6	51	130	2070	1	B
204	GETTY, EAST BRUNSWICK, MIDDLESEX CO.	402715	742358	4.4	1	170	2060	1	
324	CHESEBROUGH PARK, OLD BRIDGE TWP., MIDDLESEX CO.	402606	741646	3.4	35	103	2030	1	
350	MADISON IND. (AND OF CHEMICALS), MADISON TWP., MIDDLESEX CO.	402504	741945	2.6	35	2092	0	9	
352	OPS, MADISON TWP., MIDDLESEX CO.	402605	741938	2.8	1	2092	0	9	
396	SHERWIN WILLIAMS (FORMERLY ASHLAND CHEM.), FORDS, MIDDLESEX CO.	402913	742045	1.7	00	2090	0	1	
397	MIDREX (FORMERLY TENNECO), FORDS, MIDDLESEX CO.	402913	742030	1.5	1	2090	0	9	
419	HATCO CHEMICAL, FORDS, WOODBRIDGE, MIDDLESEX CO.	403113	741903	3.2	1	2060	0	7	
454	STANFORD CHEM., EDISON, MIDDLESEX CO.	402926	742154	2.7	47	3070	0	0	
486	ALLIED CHEM., METUCHEN, MIDDLESEX CO.	403124	742207	4.9	1	2060	2070	8	
575	ESSEX CHEM., SAYREVILLE, MIDDLESEX CO.	402928	741903	0.0	00	2090	0	8	
597	WITCO, FERRIS ANDRY, MIDDLESEX CO.	402212	741634	4.9	50	103	2095	1	E
623	BAIR PHILLIPS LEASING CO., OLD BRIDGE TWP., MIDDLESEX CO.	402618	741925	2.5	1	2092	0	1	E
637	RENTA INC., EDISON, MIDDLESEX CO.	403110	742100	3.5	00	0100	0170	1	
652	CHEMICAL INSECTICIDE CORP., METUCHEN	403130	742230	4.5	72	0100	2070	1	E
653	MIDREX, SAYREVILLE, MIDDLESEX CO.	402650	742150	3.0	47	2060	2095	1	E
669	SAYREVILLE ASBESTOS SITE, SAYREVILLE, MIDDLESEX CO.	402532	742035	3.2	71	2092	2095	1	E
715	KIN RUC, EDISON, MIDDLESEX CO.	402928	742238	3.3	00	100	2060	9	
725	SAYREVILLE LANDFILL, SAYREVILLE, MIDDLESEX CO.	402643	742126	2.8	1	0100	2060	9	
740	EDGEWOOD DISPOSAL LANDFILL, EAST BRUNSWICK, MIDDLESEX CO.	402815	742307	3.5	58	2060	0	9	
840	SUPERIOR AIR PRODUCTS CORP.	402602	742069	3.2	12	2092	0	1	B
1209	DAVIDSON MILL RD. DRUM SITE, SOUTH BRUNSWICK TWP., MIDDLESEX CO.	402327	742435	4.8				3	
1242	REVLON WAREHOUSE, EDISON, MIDDLESEX CO.	403053	742134	3.6	53	2090		1	C
1301	RARITAN WAREHOUSE, EDISON, MIDDLESEX CO.	403100	742130	3.6	00	3070	2060	1	C
1306	HORSESHOE ROAD SITE, SAYREVILLE, MIDDLESEX CO.	402906	741910	0.7	72	2060		7	D

Number of Observations: 27

Ref. No. 4 p. 81

ATTACHMENT A

PARCEL NUMBER	OWNER'S NAME	MAILING ADDRESS	PROPERTY LOCATION	ADDITIONAL LOTS	19-SAYREVILLE BORO	1-VACANT LAND	LAND-50X100	IMPROVEMENT-IV	TOTAL TAXES/YR
00365-0000-00243	KURTZ JANE	256 BORDENTOWN AVENUE	SOUTH AMBOY NEW JERSEY 08679	CLEVELAND AVE				\$4,600TV \$4,600LV \$152.26/87	
00365-0000-00245	W. SNIIEWSKI ANDREW	81 CLEVELAND AVE	PARLIN NJ 08559	CLEVELAND AVE	19-SAYREVILLE BORO	2-RESIDENTIAL	OWNERS-1 LAND-50X100 BLDG-2 FR HSES ** MORTGAGE INFORMATION ** PULASKI S/L ASSN	\$62,200TV \$9,100LV \$53,100LV \$1,808.82/87	
00365-0000-00247	KACZMAREK CECILIA	79 CLEVELAND AVE	PARLIN NJ 08559	CLEVELAND AVE	19-SAYREVILLE BORO	2-RESIDENTIAL	OWNERS-1 LAND-50X100 BLDG-3TU HSE	02/21/85 \$42,100TV \$9,100LV \$33,000LV \$1,143.51/87	
00365-0000-00249	WARDEN BEATRICE	75 CLEVELAND AVE	PARLIN NJ 08559	CLEVELAND AVE	19-SAYREVILLE BORO	2-RESIDENTIAL	OWNERS-2 LAND-50X100 BLDG-2 FR HSE	\$37,200TV \$9,100LV \$28,100LV \$981.32/87	
00365-0000-00251	WARDEN BEATRICE	75 CLEVELAND AVE	PARLIN NJ 08559	GARFIELD PL	19-SAYREVILLE BORO	1-VACANT LAND	LAND-100X50	\$9,100TV \$9,100LV \$228.39/87	
00366-0000-00001	KAPLAN & SONS CONSTRUCTION CORP	3100 WEDGE AVE CN2910	EDISON NJ 08818	MAIN ST	19-SAYREVILLE BORO	1-VACANT LAND	LAND-7.17 AC	\$76,000TV \$76,000LV \$2,515.60/87	
00366-0000-00002	ESSEX CHEMICAL CORP	1401 BROAD STREET	CLIFTON NEW JERSEY 07015	MAIN ST	19-SAYREVILLE BORO	1-VACANT LAND	LAND-.32 AC		
00366-0000-00001	INDUSTRIAL SERVICE & SUPPLY CO	21 CAPRIO 16 CORLIES AVE	ALLENHURST NEW JERSEY 07711	MAIN ST	19-SAYREVILLE BORO	1-VACANT LAND	LAND-13.18 AC	\$175,300TV \$175,300LV \$5,802.43/87	

B 01



800-327-1085

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PARCEL NUMBER	DISTRICT	PROPERTY CLASS	SALE PRICE	VALUES
OWNERS NAME	EXEMPTIONS	STATISTICAL	SALE DATE	TOTAL-TV
MAILING ADDRESS	SPECIAL CODES	DATA	BOOK-PAGE	LAND-LV
*PROPERTY LOCATION				IMPROVEMENT-IV
ADDITIONAL LOTS				TOTAL TAXES/YR
00367-0000-00001	19-SAYREVILLE BORO	1-VACANT LAND		\$54,500TV
KAPLAN & SONS CONSTRUCTION CORP		LAND-4.54 AC		\$54,500LV
3100 WEDGE AVE CN2910				\$1,803.95/87
EDISON NJ 08818				
ERNSTON RD				
00367-0000-00001	19-SAYREVILLE BORO	2-RESIDENTIAL		\$111,100TV
SAYREBROOKE RES COMM INC		LAND-1.882 AC		\$22,300LV
2-70 TOWN CENTER DRIVE		BLDG-POOL T. COURTS		\$88,800LV
NORTH BRUNSVICK NJ 08902				\$3,677.41/87
BLUE SPRINGS SEC. 5				
00368-0000-00009	19-SAYREVILLE BORO	2-RESIDENTIAL	\$260,000	\$79,600TV
LAKORSKI THOMAS & JOAN		LAND-87X133	06/84	\$10,300LV
119 JACKSON AVENUE		BLDG-FR. HSE.	3364-0133	\$69,300LV
PARLIN NEW JERSEY 08559		** MORTGAGE INFORMATION **		\$2,634.76/87
JACKSON AVE		KAPLAN AT REFLECTIONS INC		
		TYPE-CMV AMT-\$24,000		
00368-0000-00010	19-SAYREVILLE BORO	2-RESIDENTIAL	\$56,000	\$65,800TV
DE PASQUALE PHILLIP & LINDA A		LAND-87X138	12/07/81	\$10,300LV
117 JACKSON AVENUE		BLDG-FR HSE	3219-0244	\$55,500LV
PARLIN NEW JERSEY 08559		** MORTGAGE INFORMATION **		\$2,177.98/87
JACKSON AVE		PERTH AMBOY SAVINGS INSTITUTIO		
		TYPE-CMV AMT-\$76,000		
00368-0000-00011	19-SAYREVILLE BORO	2-RESIDENTIAL	\$103,000	\$84,500TV
LIGUIGLI LEONARD & RITA	PERSONAL-VETERAN	OWNERS-2	12/79	\$10,400LV
115 JACKSON AVENUE		LAND-87X143AVG.	3126-0713	\$74,100LV
PARLIN NEW JERSEY 08559		BLDG-FR HSE		\$2,746.95/87
JACKSON AVE		** MORTGAGE INFORMATION **		
		JERSEY RTGE CO		
		TYPE-CMV AMT-\$61,800		
00368-0000-00012	19-SAYREVILLE BORO	2-RESIDENTIAL	\$104,000	\$69,000TV
GUIDO BRIGITTE		LAND-87X148	12/25/80	\$10,400LV
113 JACKSON AVENUE		BLDG-FR HSE	3173-0235	\$58,600LV
PARLIN NEW JERSEY 08559				\$2,283.90/87
JACKSON AVE				
00368-0000-00013	19-SAYREVILLE BORO	2-RESIDENTIAL	\$105,000	\$79,400TV
DOWLING BRIAN C & LYNN A		LAND-87X154AVG.	07/01/81	\$10,600LV
111 JACKSON AVENUE		BLDG-FR HSE	3197-0857	\$68,800LV
PARLIN NEW JERSEY 08559		** MORTGAGE INFORMATION **		\$2,628.14/87
JACKSON AVE		COLONIAL RTGE SERVICE CO		
		TYPE-CMV AMT-\$84,000		
00368-0000-00014	19-SAYREVILLE BORO	2-RESIDENTIAL	\$105,000	\$72,900TV
SHIELDS JOAN ZADROZNY		LAND-87X157AVG.	07/82	\$10,600LV
		BLDG-FR HSE	3194-0117	\$68,300LV
		** MORTGAGE INFORMATION **		

PROPERTY
00369-000
GALL
PA
*1
00368-000
HAG
2
P.
*2
00360-00
POM
3
P.
*3
00368-00
DIP
2
P.
*4
00368-00
FEI
*5
00368-00
KA
*6
00368-00
VI
*7
00368-00
L
*8

PARCE
*PROP
00368
*9
00368
*10
00368
*11
00368
*12
00368
*13
00368
*14
00368
*15
00368
*16
00368

83

CALL
PROPERTY (LOC
ADD)

00280-0000-00
LEHMAN I
225 N
WILLIAMS

00280-0000-00
VRABEL
54 S
SOUTH

00280-0000-00
BORGHESE
167 R
SAYRE

00280-0000-00
VRABEL
HIGH
SOUTH

00280-0000-00
TODDIE
107 I
SAYRE

00280-0000-00
VRABEL
HIGH
SOUTH


00280-0000-00
J C VI
PO E
ASBL

00280-0000-00
VRABEL
54 S
SOUTH

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800-327-1085


 PARCEL MAP
 OWNER
 RAI
 +PROPERTY
 00280-000C
 VRABE
 54
 SOL
 1
 00280-000C
 VRABE
 54
 SOL
 1
 00280-000C
 VRABE
 54
 SOL
 1
 00280-000C
 ANTH
 41
 PE
 00280-000C
 VRABE
 54
 SOL
 00281-000C
 BORO
 16
 3A
 00281-000C
 LEH
 2
 PL
 00282-000C
 LEH
 12

ATTACHMENT A2

ATTACHMENT B

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
INDUSTRIAL SITE EVALUATION ELEMENT
CN 028, TRENTON, N.J. 08625

ENVIRONMENTAL CLEANUP RESPONSIBILITY ACT (ECRA)

INITIAL NOTICE

SITE EVALUATION SUBMISSION (SES)

This is the second part of a two-part application form. This information must be submitted within 45 days following any applicable situation as specified at N.J.A.C. 7:26B-1.5 or any triggering event as specified at N.J.A.C. 7:26B-1.6. Please refer to the instructions and N.J.A.C. 7:26B-3.2 before filling out this form. Answer all questions. Should you encounter any problems in completing this form, we recommend that you discuss the matter with a representative from the Element. Submitting incorrect or insufficient data may cause processing delays and possible postponement of your transaction. Please call (609) 633-7141 between the hours of 8:30 a.m. and 4:30 p.m. to request assistance.

PLEASE PRINT OR TYPE

Date January 31, 1989

1. Industrial Establishment

Name Essex Specialty Products, Inc. (ECRA Case No. 88904)
Sayreville Borough Facility
Address 1 Crossman Road South

City or Town Sayreville Zip Code 08872

Municipality Sayreville Borough County Middlesex

A. Operational and Ownership History: (Attach additional sheets if necessary)

<u>Name</u>	<u>Owner/ Operator</u>	<u>From</u>	<u>To</u>	<u>Current Address</u>
<u>See Attachment 1</u>				

B. Brief description of past operation(s) conducted on site (Attach additional sheets if necessary)

See Attachment 2

Ret. No. 4 p. 86
Page 1 of 3

ATTACHMENT B4

2. List all federal and state environmental permits applied for, or received, or both, at this facility (*Attach additional sheets if necessary*)

Check here if no permits are involved _____

A. New Jersey Bureau of Air Pollution Control

Permit Number	Certificate Number	Date of Approval or Denial	Reason for Denial (If applicable)	Expiration Date
See Attachment 3				

B. New Jersey Pollutant Discharge Elimination System (NJPDES)

Number	Discharge Activity	Date Issued or Denied	Expiration Date	Body of Water Discharged Into
See Attachment 4				

- C. United State Environmental Protection Agency (EPA) Identification Number and copy of the most recent generator Annual Report prepared pursuant to the New Jersey Hazardous Waste Regulations. (*If applicable*)

ID # NJD002568715

Is a copy of the Annual Report attached? ☒ Yes (See Attachment # 5) ☐ No

D. Resource, Conservation, Recovery Act (RCRA) Permit # N/A

E. Bureau of Underground Storage Tank Registration Number(s) All UST's removed in 1983

F. All other federal, state, local governmental permits.

Agency Issuing Permit	Permit No.	Date of Approval or Denial	Expiration Date
Middlesex County Utilities	(none issued)		(none issue
See Attachment 4 for additional information.			

3. Summary of Enforcement Actions for Violation of Environmental Laws or Regulations:

Check here if no enforcement actions are involved _____

A. Date of Action See Attachment 6

Section of Law or Statute violated _____

Type of Enforcement Action _____

Description of the Violation _____

How was the violation resolved? _____

B. Date of Action _____

Section of Law or Statute violated _____

Type of Enforcement Action _____

Description of the Violation _____

How was the violation resolved? _____

4. Site Map

Is this map enclosed? X Yes (See Attachment # 7) _____ No

If No, state the reason _____

(Attach additional pages, if necessary)

5. Description of Operations:

Is this report enclosed? ☒ Yes (See Attachment # 8) ☐ No

If No, state the reason _____

6. Description of Building Heating System:

A. How is the Industrial Establishment currently heated? (Oil, Gas, Electric) Gas

How long has the Industrial Establishment been heated by the above fuel/energy source: 23 years

B. Was the Industrial Establishment heated by fuel oil at any time: ☐ Yes ☒ No

Is information on the decommissioning of underground fuel oil tanks included with item No. 14 of this form?

☒ Yes ☐ No If no, explain below: _____

C. Are the results of the Integrity Evaluation for Existing Underground Fuel Oil Tanks enclosed?

☐ Yes (See Attachment # _____). ☒ No If no, state the reason N/A

All underground tanks removed in 1983.

7. Summary of Industrial Establishment Wastewater Discharges of Sanitary and/or Industrial Waste:

A. Discharge Period
From To

1983 Present

Discharge Type Treatment By
Sanitary sewage and effluent from oil water separator. Middlesex Co. Utilities Authority
(MCUA)

1965

1983

Sanitary sewage

(MCUA)

B. If the Industrial Establishment discharges sanitary and/or industrial wastes to a publicly-owned treatment plant, provide the name/address of that facility.

Name Middlesex Co. Utilities Telephone # (201) 721-3800
Authority (MCUA)

Street Address Chevalier Avenue

Municipality Sayreville State NJ Zip Code 08872

Date(s) of Discharge

Nature of Discharge

1. 1965-1983
2. 1983-present
3. _____

Sanitary sewage.
Sanitary sewage and effluent from
oil/water separator.

Hazardous Substance and Waste Containment Description: (Attach additional sheets if necessary)

Type of Storage Unit	Date Installed	Area or Volumetric Capacity (Include units)	Material Stored	Construction Type	Location Reference	Decommissioning or Sampling Reference
Warehouse	Early 1970s	20,000 ft. ²	Raw Materials	DOT Approved Metal Drums	See Map	
Tank Farm	1981	30,000 gal.*	Bulk Flammable Solvents	Steel TLS w/Concrete Dike and Pad	"	
Production Area	Late 1960s	20,000 ft. ²	Flammable Solvents	"	"	
Hazardous Waste Storage	1981	2,000 ft. ²	Flammable Solvents	"	"	
Flammable/Finished Product Storage	Early 1970s	5,000 ft. ²	Flammable Materials	"	"	

* At present only 3 of the 10 tanks are filled with hazardous substances, (Toluene, Methylethyl ketone, reclaimed solvents - toluene acetone and methylene chloride)

Hazardous Substance/Waste Inventory:

Material Name	Quantity (Indicate units)	Location Reference	Storage Method Container Type/Size	Typical Annual Usage	To Remain on Site (Yes or No)
See Attachment 9					

ATTACHMENT 9-5
204.00.14
D. 9c

10. Discharge History of Hazardous Substances and Wastes:

- A. Have there been any discharges of hazardous substances and wastes?
 X Yes (Complete Item B below) No (Go to Item 10C)

B. Summary of Discharges and Resolutions

[illegible]

- C. Is this Industrial Establishment subject to Spill Prevention Control and Countermeasure (SPCC) per 40 CFR Part 112 or Discharge Prevention, Containment and Countermeasure (DPCC) Plan per NJAC 7:1E-4.1 requirements?

X Yes No A copy of the Plan(s) may be required at the discretion of the Department.

11. Sampling Plan Proposal

- A. Is sampling proposed at the facility? X Yes (See Attachment # 11) No

If sampling is not proposed, please explain below. (Attach additional sheets if necessary)

- B. Is groundwater sampling proposed? X Yes No

Note: If groundwater sampling is proposed under the plan, you must complete ECRA Form 002A "Request for Hydrogeologic Assessment" and submit it with the application.

12/87

12. Decontamination/Decommissioning Plan

A. Is the facility Decontamination/Decommissioning Plan enclosed?

 Yes (See Attachment #) X No

B. If no, specify why decontamination/decommissioning is not considered necessary.

Current facility operations will continue.

13. Historical Data on environmental quality at the Industrial Establishment

A. Were sampling results obtained on Environmental Quality for the Industrial Establishment?

 X Yes (See Attachment # 12) No

B. If sampling results were obtained but are not part of this application, please explain below:

14. List any other information you are submitting or which has been formally requested by the Department:

<u>Description</u>	<u>Attachment #</u>
<u>History of facility decontamination/decommissioning</u>	<u> 13 </u>
<u>Aerial Photographs</u>	<u> 14 </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>

SEE CHECKLIST

Include below a breakdown of the total fee submitted with this application. (See N.J.A.C. 7:26B-1.10 for the appropriate fees.)

<u>Item</u>	<u>Amount (\$)</u>
1. Initial Notice Review	
i. Without Sampling Plan	
ii. With Sampling Plan that includes only underground storage tank analysis without groundwater monitoring	
iii. With Sampling Plan other than ii. above or iv. below	
iv. With Sampling Plan that includes any groundwater monitoring	<u>\$7,500.00</u>
2. Sampling Data Review	
3. Negative Declaration Review	
4. Cleanup Plan Review	
5. Oversight of Cleanup Plan Implementation	
TOTAL FEE ENCLOSED	<u>\$ 57,500.00</u>

ARE FEES ENCLOSED? X YES

CERTIFICATIONS:

- A. The following certification shall be signed by the highest ranking individual at the site with overall responsibility for that site or activity. Where there is no individual at the site with overall responsibility for that site or activity, this certification shall be signed by the individual having responsibility for the overall operation of the site or activity.

I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of N.J.S.A. 13:1K-6 et seq., I am personally liable for the penalties set forth at N.J.S.A. 13:1K-8.

Typed/Printed Name Robert Hoffman Title Plant Manager

Signature _____ Date _____

Sworn to and Subscribed Before Me
on this _____
Date of _____ 19 ____

Notary

- B. The following certification shall be signed as follows:

1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, Federal or other public agency, by either a principal executive officer or ranking elected official.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate, or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of N.J.S.A. 13:1K-6 et seq., I am personally liable for the penalties set forth at N.J.S.A. 13:1K-8.

Typed/Printed Name Irwin S. Zonis Title Senior Vice President

Signature Irwin S. Zonis Date Jan. 30, 1989

Sworn to and Subscribed Before Me
on this 30th
Date of JANUARY 19 89

Emily Diamond
Notary

EMILY DIAMOND
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires October 14 1992

ATTACHMENT B8

List of Attachments

ITEM	ATTACHMENT
1A Operation and Ownership History	1
1B Brief Description of Past Operations	2
2A Air Pollution Control Permits	3
2B NJPDES/DSW Permit	4
2C Hazardous Waste Annual Report, 1987 ID#NJD002568715	5
3A Summary of Enforcement Action	6
4 Site Map	7
5 Description of Operations	8
9 Hazardous Substance/Waste Inventory	9
10B Summary of Discharges and Resolutions	10
11 Sampling Plan Proposal	11
13 Historical Data on Environmental Quality at the Industrial Establishment	12
14 History of Facility Decontamination/Decommissioning	13
14 Aerial Photographs	14

Attachment 1

Sayreville Borough Facility
Sayreville, New Jersey

ECRA Site Evaluation Submission

SES Item 1A

Operation and Ownership History

ATTACHMENT B-10
Ref. No. 4 p. 95

Operation and Ownership History

Site historical information was compiled by ERM, Inc. through a review and survey of several data sources. Initially, a title search was performed on existing deed records located at the Middlesex County Clerk's Office. Additional information was compiled on the site through interviews and discussions with Essex Chemical Corporation, Inc. (Essex) personnel and local officials. Finally, an evaluation of recent and past aerial photography and a site visit were completed.

According to the existing deed records filed at the Middlesex County Clerk's Office, the property identified as Block 251, Lot 2 in the Middlesex County Tax Maps for Sayreville has the following title transfer history:

Table 1: Title Transfer History of the Essex Chemical Corporation, Inc. Property - Sayreville, Middlesex County, New Jersey (in reverse chronological order)

<u>Date</u>	<u>Grantee</u>	<u>Grantor</u>
1945 - 1964	The property was owned by Such Clay Company.	
10 September 1964	Essex Chemical Corporation	Crossman Company (1)
16 September 1964	Essex Chemical Corporation	Crossman Company (1)
18 October 1965	Essex Chemical Corporation	Elbert A. Kaplan (1)
8 May 1967	Essex Chemical Corporation	Kaplan & Sons Construction Company

(1) Sale of certain tracts or parcels of land and premises.

A review of available records did not reveal any previous use of the site prior to the development of the Essex Chemical facility. Aerial photography obtained for the area indicates that the site and much of the surrounding region existed at that time as undeveloped woodlands.

ATTACHMENT B-12

Ref. NO. 4 O. 97

Attachment 2

Sayreville Borough Facility
Sayreville, New Jersey

ECRA Site Evaluation Submission

SES Item 1B

Brief Description of Past Operations

ATTACHMENT B-13

201 Nov 4 0 98

Brief Description of Past Operations

With the exception of the latex manufacturing operation which ceased in approximately 1984 and the polypropylene hot-melt adhesive manufacturing operation which ceased in 1986, operations have essentially remained the same since their onset in 1965.

The major change at the site itself was the decommissioning of the underground storage tank area and installation of an above ground storage containment system.

This included draining, cleaning, excavation, and disposal of all underground storage tanks. All raw materials are presently stored in a diked above ground tank farm or in steel or paper containers in the raw material warehouse.

The research and development laboratory which is part of the overall Essex Specialty chemical plant is used for experimental and developmental products.

The research and development laboratory was submitted to the State of New Jersey as a separate ECRA package (ECRA Case #88898)

ATTACHMENT B-14

Ref NO.4 p. 99

NJPDES/DSW Permit

Essex Specialty Products (Sayreville Borough Facility) was issued a New Jersey Pollution Discharge Elimination System (NJPDES) NJ0003093 in 1975. This permit allowed the Sayreville Borough facility to discharge non-contact cooling water and boiling blow down condensation water to Burt's Creek.

In April of 1983 all discharge pipes were removed or permanently sealed. The Sayreville Borough facility subsequently applied to the New Jersey Department of Environmental Protection (NJDEP) for an exemption from the New Jersey Pollution Discharge Elimination System, (NJPDES) permit. Sayreville Borough facility received an Affidavit of Exemption from NJDEP on 15 July 1985. The Affidavit of Exemption is attached.

In April of 1983, an oil/water separator was installed. All storm waters runoff from the east and south sides of the facility are collected and drained by an on-site storm drain system. All storm water from these areas pass through an oil/water separator before being discharged to the Middlesex County Utilities Authority (MCUA). All other storm water runoff from other areas of the facility gravity drains to storm water sewers that directly discharge to MCUA.

Sayreville borough facility does have a approval to discharge to MCUA. However, there is no written final permit. The water that passes through the oil/water separator is analyzed quarterly for total water flow (MG), pH, BOD, suspended solids (tons), and CL Demand (CW). The water was also analyzed for total petroleum hydrocarbons prior to receiving the waste water discharge permit (MCUA).

The waste water that discharges to MCUA is primarily storm water runoff. The oil/water separator should collect any liquids or small quantity of oil that may enter the system.

Ref. No. 4 p. 100
8-15
ATTACHMENT



NOTICE OF AUTHORIZATION



PERMIT NO.

ISSUANCE DATE

EFFECTIVE DATE

EXPIRATION DATE

0003093

June 26, 1985

August 1, 1985

July 31, 1990

ISSUED TO

FOR ACTIVITY/FACILITY AT

OWNER

Essex Specialty Products, Inc.
11 Broad Street
Hightstown, N.J. 07015

1 Crossman Road South
Sayreville, N.J. 07015

Same as Applicant

ISSUING DIVISION

TYPE OF PERMIT

STATUTE(S)

APPLICATION NO.

Water Resources

NJPDES/DSW

N.J.S.A.

NJ00000093

PERMIT TO

58:10A-1 et seq.

Discharge into Burt's Creek classified as FW-2 Nontrout Waters, in accordance with effluent limitations, monitoring requirements and other conditions as set forth in Parts I, II, and III hereof.

Authority of:
Gaston Jr., P.E.
Director
Division of Water Resources

DEP AUTHORIZATION

THIS NOTICE MUST BE CONSPICUOUSLY DISPLAYED AT THE ACTIVITY/FACILITY SITE.

ATTACHMENT B-16
REL NO 4 D. 101

Notice of Violations Summary

(All violations are attached)

3 A. Date of Action: October 6, 1978

Section of Law or Statute Violated: 40 CFR 112

Type of Enforcement Action: Notice of Violation

Description of the Violation: Essex charged with "Specific violations of Oil Pollution Prevention Regulations promulgated at 40 CFR Part 112".

A Consent Agreement and Order was entered by EPA and Essex in May, 1984. Beyond this Consent Agreement and Order, no other records are available relative to this enforcement action.

B. Date of Action: February 4, 1983

Section of Law or Statute Violated: 40 CFR 112

Type of Enforcement Action: Notice of Violation

Description of Violation: Failure to fully implement Spill Containment and Countermeasure Plan.

A Consent Agreement and Order was entered by EPA and Essex. A new SPCC Plan was implemented.

C. Date of Action: September 13, 1985

Section of Law or Statute violated: NJAC 7:14-8.1 and 8.16

Type of Enforcement Action: Thirty-day Notice

Description of Violation: Failure to submit a discharge monitoring report (DMR) for the monitoring period ending 7/31/85.

A DMR was submitted within 30 days of receipt of notification.

D. Date of Action: April 3, 1987

Section of Law or Statute Violated: NJSA 13-1E-1 et. seq

Type of Enforcement Action: Notice of Civil
Administrative Penalty Assessment.

Description of Violation: Essex was alleged to have accumulated hazardous waste in containers on site in excess of 90 days and to have failed to conduct daily inspections of hazardous containment areas.

Essex paid the assessed penalty and later submitted copies of manifests and the daily inspection log as evidence that (the facility) had been in complete compliance.

E. Date of action: (letter not dated)

Section of Law of Statute Violated: NJAC 7:26-7.6 (f) 2

Type of Enforcement Action: Notice of Violation

Description of the Violation: Failure to submit an annual report by March 1, 1982.

Essex submitted a report within the 15 day deadline specified in the enforcement action.

Ref. No 4 p. 103
ATTACHMENT B-18

Description of Operations

The Sayreville Borough facility supplies sealants, adhesives, and coatings to the following industries: transportation, electronics, metal fabricating, appliance manufacturing, packaging, and paper and plastic covering. Distribution of products is nationwide under a variety of trade names.

The unit processes employed at the Sayreville Borough facility are essentially mixers which combine various raw materials to form batches of the desired products. These products include the following: structural adhesives, pigmented and non-pigmented primers, industrial adhesives, Betabrace® epoxy, body sealer, sealants, and castable urethane. Some mixers require heat whereas others require cooling water to maintain the required temperature during reactions within the mixers.

Some drying operations include grinding or extruding of raw materials to specification before blending operations.

Reactors are intermittently cleaned with reclaimed methyl ethyl ketone (MEK) or toluene. These solvents are drummed and held on site in a designated paved, fenced, and locked hazardous waste drum storage area for less than 90 days, at which time they are manifested for disposal or reclaimed off-site at a permitted TSD facility.

Each unit process is vented via an exhaust system to the exterior of the building. Processes which emit particulates are vented to dust collectors on the exterior of the building.

Attachment 11

Sayreville Borough Facility
Sayreville, New Jersey

ECRA Site Evaluation Submission

SES Item 11

Sampling Plan Proposal

Ref. No. 4 p. 105
ATTACHMENT B-20

TABLE OF CONTENTS

	<u>Page</u>
List of Figures and Tables	
Forward	
Section 1 INTRODUCTION	1-1
1.1 Environmental Setting	1-1
1.1.1 Location	1-1
1.1.2 General Area Use	1-1
Section 2 SITE SPECIFIC	2-1
2.1 Site Description	2-1
2.2 Site History	2-2
2.3 Site Soils	2-3
2.4 Topography/Drainage	2-3
2.5 Hydrogeology	2-4
2.5.1 Surface Water Hydrology	2-4
2.5.2 Site Hydrogeology	2-4
2.6 Soils and Near-Surface Geology	2-4
2.7 Ground Water Quality	2-5
Section 3 AREAS OF POTENTIAL CONCERN	3-1
3.1 Areas of Concern	3-4
3.1.1 Tank Farm Area	3-4
3.1.2 Spill Prevention/Stormwater Drains	3-4
3.1.3 Soil-Stained Areas	3-5
3.1.4 Bis (2-ethylhexyl) phthalate Spill area	3-5
3.2 Soil/Sediment Sampling Locations and Analytical Parameters	3-6
3.2.1 Dark-Stained Soils	3-6
3.2.2 Spill Prevention/Sewer Drains	3-7
3.2.3 Bis (2-ethylhexyl)	

TABLE OF CONTENTS
(continued)

	<u>Page</u>
phthalate Spill area	3-8
3.3 Ground Water Monitoring Locations and Analytical Parameters	3-8
Section 4 FIELD SAMPLING AND ANALYTICAL QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES	4-1
4.1 Soil and Ground Water Sampling Procedures	4-1
4.1.1 Preparation for Sampling	4-1
4.2 Sampling Methodology	4-2
4.2.1 Soil Sampling	4-2
4.2.2 Ground Water Sampling	4-3
4.3 Post-Sampling Procedures and Decontamination	4-3
4.3.1 Sampling Equipment Decontamination	4-3
4.3.2 Sample Preparation and Preservation	4-3
4.3.3 Sample Custody	4-4
4.4 Field Documentation	4-6
4.5 Quality Assurance/Quality Control Measures	4-6
4.5.1 QA/QC Samples	4-7
4.6 Analytical Methods	4-7
4.6.1 Analytical Data Package and Validation Review	4-7
Section 5 FORWARD	
Introduction	5-1
5.1 Planned Site Activities	5-1
5.2 Key Hazards	5-2
5.3 PPE Requirements	5-2
5.4 Project Organization and Responsibilities	5-2
5.5 Medical Monitoring and Personnel	

TABLE OF CONTENTS
(continued)

	<u>Page</u>
Training Requirements	5-4
5.5.1 Medical Monitoring	5-4
5.5.2 Personnel Training	5-5
5.6 Monitoring	5-7
5.6.1 Site Monitoring	5-7
5.6.2 Site Action Levels	5-8
5.7 Personnel Protective Equipment	5-9
5.7.1 Protective Equipment	5-9
5.7.2 Level B Protection	5-9
5.7.3 Level C Protection	5-10
5.7.4 Level D Protection	5-11
5.8 Decontamination	5-11
5.8.1 General	5-11
5.8.2 Standard PPE Decontamination	5-13
5.9 Contingency/Emergency Response Plan	5-16
5.9.1 Emergency Coordinator	5-16
5.9.2 Emergency Procedures	5-17
5.9.3 Fire, Explosion or Spill	5-17
5.9.4 Accidents and Injuries	5-19
5.9.5 Site Evacuation Routes/Zones	5-20
5.9.6 Emergency Equipment	5-20
5.9.7 Site Access/Control	5-20
5.10 Health and Safety Plan	5-21
References	

LIST OF FIGURES

<u>Figures</u>	<u>Following Page</u>
1-1 Plant Location Map	1-1
2-1 General Plant Layout	2-1
2-2 Soils map	2-3
2-3 Ground Water Contour Map	2-4
3-1 NJDEP Monitor Well Specifications for Unconsolidated Formations	3-8
4-1 Bottle Order and Analytical Service Request Form	4-2
4-2 Sample Chain of Custody	4-5
4-3 Traffic Report	4-5
4-4 ERM Custody Seal	4-5
4-5 ERM Cooler Transfer Acknowledgement	4-5
4-6 ERM Sampling Log Book SOP	4-6
5-1 Site Map	5-1
5-2 Route to Hospital	5-17

<u>Tables</u>	<u>Following Page</u>
3-1 Sampling Plan Summary Table	3-2
4-1 Sample containers and Preservation Requirements	4-4
5-1 Established Action Levels	5-2
5-2 Emergency Telephone Numbers	5-17

ATTACHMENT B-24

Ref No. 4 D. 109

SECTION 1

INTRODUCTION

This sampling plan has been generated to fulfill the requirements of Item 11 of the Site Evaluation Submission under NJDEP's ECRA law for the Essex Chemical Corporation, Sayreville Borough facility in Sayreville, New Jersey.

The quality assurance/quality control and health and safety plans associated with this sampling plan are provided in Sections 4 and 5 respectively.

1.1 Environmental Setting

1.1.1 Location

The Sayreville Borough facility is located in Sayreville Township, Middlesex County, New Jersey. The property is identified as Lot 2 of Block 251 on the Sayreville tax maps. The plant site is located in the north-central portion of the South Amboy, New Jersey Quadrangle of the U.S.G.S. 7.5-minute series topographic map (photo revised 1981). The location of the plant is shown on Figure 1-1.

1.1.2 General Area Use

The Sayreville Borough facility encompasses approximately 18 acres of land and includes an existing office /manufacturing building. The majority of the plant site is paved with asphalt or reinforced concrete. A small percentage of the property that is unrelated to the manufacturing operations is landscaped. The landscaped areas are located to the north of the office/manufacturing building, south and west of the parking lot (west area of building) and south of the second parking lot opposite the production/storage and flammable and finished products storage area.

The Sayreville facility Research and Development building is located approximately 250 feet southwest of the office/manufacturing plant and has been submitted to NJDEP as a separate ECRA package.

An abandoned and partially demolished chemical plant (Saytech Chemical) borders the site to the west, a steel plant (New Jersey Steel Company) to the northwest, a small retail shopping center to the north, and undisturbed wooded areas to the east and south.

SECTION 2
SITE SPECIFIC DATA

2.1 Site Description

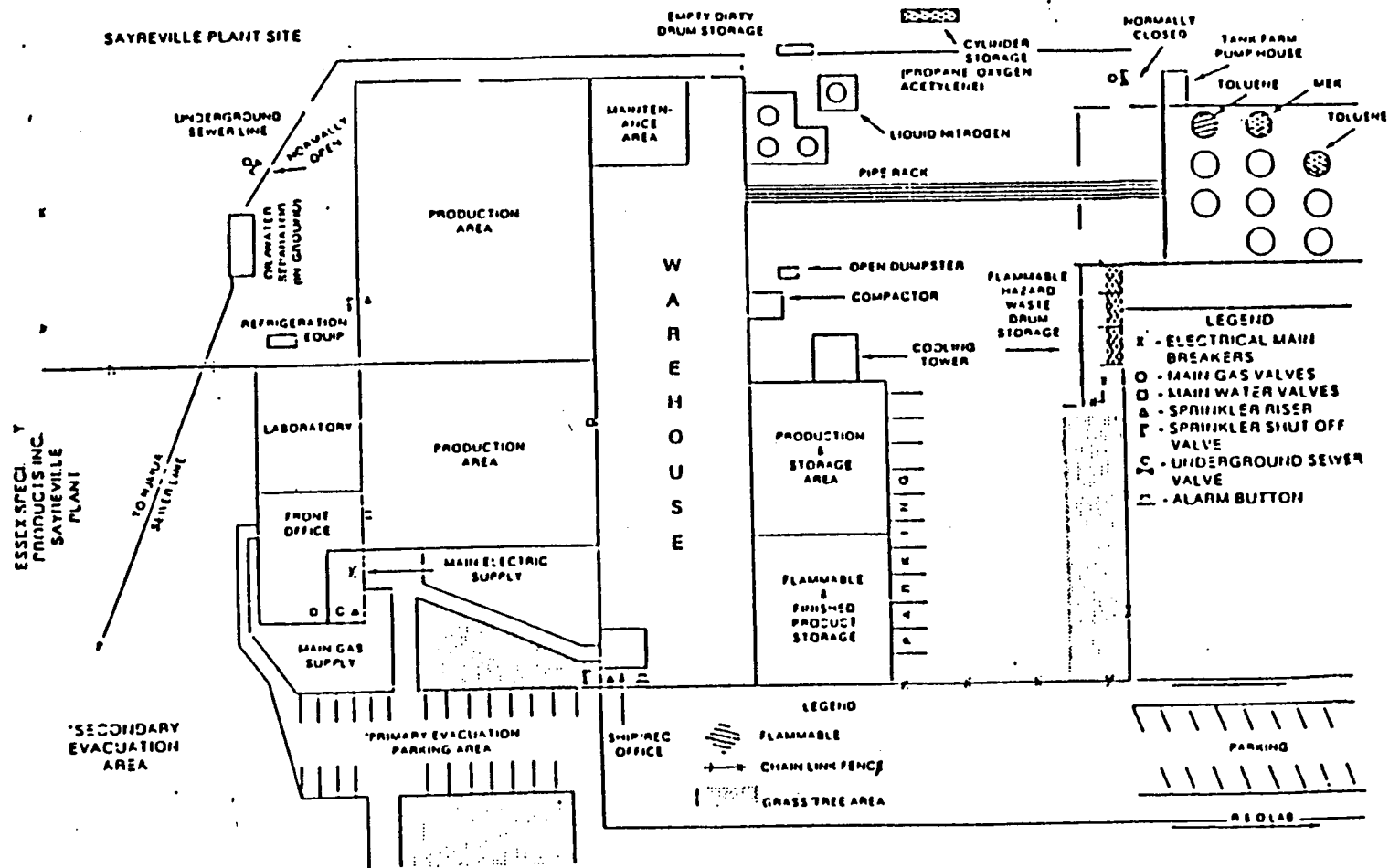
The Sayreville Borough facility operates within an approximate 90,000 square feet office/manufacturing building situated on approximately 18 acres of property in Sayreville Borough, New Jersey. The Sayreville Borough facility building is a combination one and two-story masonry structure (without a basement) which was built in 1965. Figure 2-1 shows a general layout of the Sayreville Borough facility.

Access to the Sayreville Borough facility is from Crossman Road South (west side of plant). One location serves as an entrance for employee parking. A second entrance serves the loading/shipping dock area and areas to the south of the manufacturing building (Flammable Hazardous Waste Drum Storage Area and Tank Farm Area, defunct tanker loading area, and a general access area to the northeast of the office/manufacturing building) which together comprise roughly 119,500 square feet of paved area. The remaining portions of the site are either landscaped or open space.

The Sayreville Borough facility is serviced by the Middlesex County Utility Authority Sewer System (MCUA). Potable water is supplied to the facility from the Sayreville public water supply system.

The heating system at Sayreville Borough facility is fueled by natural gas. The plant, to the best of Essex's knowledge, was never heated with oil. There are no below-ground fuel or chemical storage tanks.

Figure 2-1
General Plant Layout
Sayreville Borough Facility
Sayreville, New Jersey



N
 Not to Scale

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Checked by / Date: D. Gould 12/20/00

Notes:

The ERM Group

Checked by / Date:

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One ground-level transformer station is located on the property adjacent to the production area near the main electric supply. The transformer station does not contain PCB's.

2.2 Site History

The Sayreville Borough facility began operations in 1965. Prior to 1965, the site location was unused woods. This is confirmed by aerial photos from 1959 (Attachment 14). The large office/manufacturing building present on site was built by Essex Chemical Corporation, the parent company.

The Sayreville Borough facility is involved in the manufacture of automotive products, including structural adhesives, sound-deadening pads, general body sealers, trim adhesives, vibration reduction materials, and strengthening products. Attachment 2 of the submission provides a more detailed description of the Sayreville Borough facility operations.

The plant was not always as extensively paved as it is today. From approximately 1965 to approximately 1983, the plant utilized sixteen (16) partially buried tanks. The tanks were located on the northeastern side of the office/manufacturing building. Following a leak of bis (2-ethylhexyl) phthalate⁽¹⁾ in June of 1978, this area was remediated. This included the removal of all tanks in January of 1983.

Stereo-pair aerial photographs have been obtained by Environmental Resources Management (ERM) to provide NJDEP with historical background information on potential areas of concern and to document non-use areas of the facility property for the years 1959

(1) Other chemical names for bis (2-ethylhexyl) phthalate that are noted throughout reports and correspondence are di (2-ethylehexyl) phthalate and dioctyl phthalate (DOP). All three names represent the same chemical.

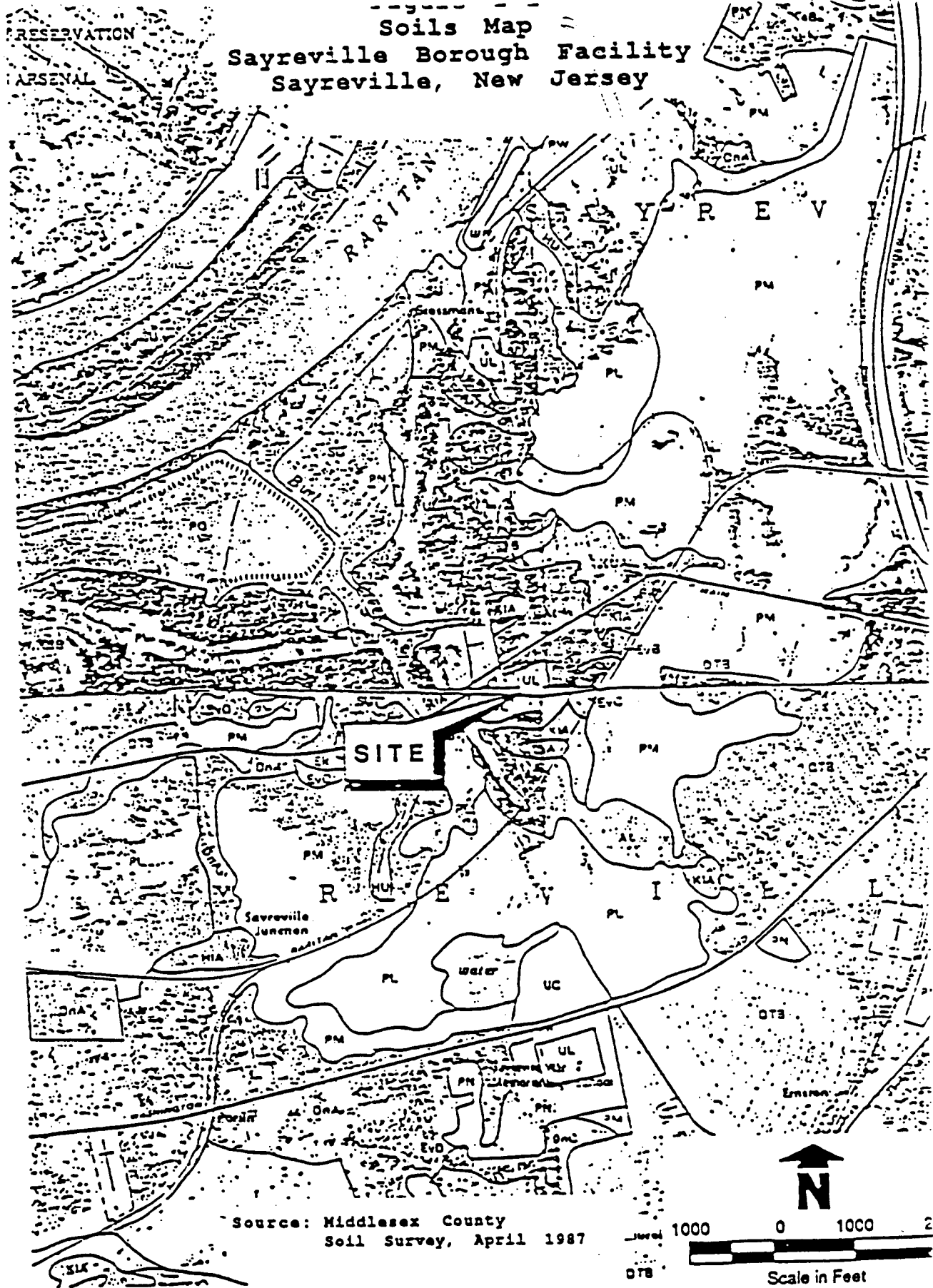
(before the presence of Sayreville Borough facility), 1969, and 1976. Aerial photographs are included in Attachment 14.

2.3 Site Soils

The soil survey for Middlesex County, published in April 1987, describes the soils found at the Sayreville Borough facility as the Urban Land Series (UL). The Urban Land Series consists of areas where more than 60% of the surface is covered by industrial plants, shopping and business centers and other structures. Most of the areas are level or moderately sloping but a few are steeply sloping. Even though (UL) series does not specifically identify the soil type, site soils are generally well drained silty-sand. The Sayreville Borough facility is gently sloping toward Burt's Creek. Figure 2-2 shows the site location and type of soils found near Sayreville Borough facility

2.4 Topography/Drainage

Stormwater drainage at the Sayreville Borough facility is controlled largely by the contouring of the facility parking lots and surrounding asphalt and concrete storage and driveway areas. Stormwater drains located in the south, east, and northeast areas of the plant are in turn connected to an oil/water separator which is connected to the MCUA public sewer. A stormwater drain is also located in the southwest area of the plant. This stormwater drain is not connected to the oil/water separator; it discharges stormwater directly to the public sewer. No storm drains are present on the northern or northwestern sides of the plant. On the north side of the plant stormwater infiltrates in the soil or flows overland directly to Burt's Creek approximately 100 feet north of the facility office building.



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ATTACHMENT *2-8*

Ref No.4 p. 116

2.5 Hydrology

2.5.1 Surface Water Hydrology

The Sayreville Borough facility is located approximately 4,000 feet south of the Raritan River. Streams and marshes present in the area drain to the Raritan River which flows to Newark Bay. A small creek called Burt's Creek is located approximately 100 feet north of the facility office building. Burt's Creek flows to the west and eventually discharges to the Raritan River.

2.5.2 Site Hydrogeology

Depth to water beneath the site ranges from about one to nine feet (International Technology Corporation, November 1988 Report). Soil boring logs obtained from previous sampling (Woodward-Clyde Consultants, September 1982, August 1983, November 1984) indicate a shallow unconfined ground water zone and a deeper aquifer which are presently separated by a clayey-silt layer. The direction of ground water flow in the shallow unconfined ground water zone is to the west (International Technology Corporation, November 1988 Report) see Figure 2-3.

Both of these hydrogeologic units are part of the Potomac-Raritan-Magothy Aquifer (P-R-M) System of Cretaceous Age. Zapecza (1984) identifies this aquifer system in the Sayreville area. The Old Bridge and Farrington aquifers, which are part of the P-R-M Aquifer System, are known to crop out in the Sayreville area.

2.6 Soils and Near-Surface Geology

The following description of the site geology is based on boring logs obtained from previous reports by Woodward-Clyde Consultants. Surface soils consist of silty-sands with traces of organic material ranging in depth from five to ten feet. In some areas of

the site upper soils have been disturbed due to construction and road building activities.

Below the silty-sands lies a clayey-silt layer that has been encountered beneath all portions of the site. The clayey-silt layer have been sampled and has an estimated permeability in the range of 1×10^{-5} to 1×10^{-6} cm/sec. The thickness of this clayey-silt layer ranges from three to five feet. Below this clayey-silt layer lies a fine sand layer of moderate permeability.

2.7 Ground Water Quality

Twelve (12) ground water monitoring wells are present on the northern side of the plant. The wells are analyzed for specific water quality parameters. Surface water samples also are collected at upgradient and downgradient creek locations (in respects to the plant) from Burt's Creek. Attachment 12 of Sayreville Borough facility ECRA evaluation submission contains results and discussion regarding previous ground water sampling conducted at the plant (see site map for monitoring well locations). Laboratory quality assurance documentation is also provided with all recent analyses in anticipation of future ECRA compliance (see Attachment 12).

ATTACHMENT B-33

SECTION 3

AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

The identification of specific areas of potential environmental concern at the Sayreville Borough facility is essential for a meaningful characterization and evaluation of Essex's impact on this site. Reliable information on site history and former land uses, an understanding of process operations, and observations made during ERM's site visits provided the basis for designating areas to be sampled and analytical protocols to be selected in this sampling program.

The history of the Essex Industrial Chemicals Sayreville Borough facility from 1965 to the present is well understood. Plant and corporate records, interviews with plant personnel, aerial photography, and a deed search indicate a very consistent pattern of site usage. Prior to 1965, the site was undeveloped woodland. Since 1965, this site used batch processing to produce automotive products including structural adhesives, sealers, and strengthening products. Attachments 1 and 2 provide additional insight into the history of site usage.

Recent spill history (as documented in Attachment 12) has been carefully analyzed. The only contaminant of concern indicated in the discharge records is bis (2-ethylhexyl) phthalate.

Process operations performed on site (more fully described in Attachment 2) involved the manufacture of automotive products from a variety of raw organic materials and solvents. Only a few metallic raw materials are used. Wastes generated were hazardous and nonhazardous. Hazardous materials were stored in a diked

concrete-lined hazardous waste drum storage area. Other than the few metallic compounds used as raw materials, available data indicate no significant on-site process sources for inorganic contaminants (including metals). Although petroleum hydrocarbons, mineral spirits, and a variety of organic solvents and compounds are used as raw materials, site support operations (heating, processing, etc.) have not involved the use of fuel oils.

On-site observation by ERM professional geologists revealed that the majority of the site is paved, with the exception of a few small areas. The black top and concrete paving is generally in good condition. Some areas within containment structures were noted to be stained, but all exterior operational areas are diked and lined with impermeable cover.

A few areas of dark colored soil were noticed at specific site locations. Given that these locations are in marshy areas, the dark "staining" is possibly the result of naturally occurring organic material.

Based on ERM's knowledge of probable site-specific contaminants, target analytical parameters for soil and ground water samples were easily identified. These include volatile and base/neutral extractable organic compounds and petroleum hydrocarbons. Since the various locations where each chemical product or raw material was stored, manufactured, or incorporated into process operations are known, it is possible to target specific areas of concern, and to define appropriate subsets of location-specific target analytical parameters for each area.

Four general areas of concern were identified on the Sayreville Borough facility property. At this facility sampling is proposed in a phased approach to initially characterize possible but unlikely contamination in the dark soil areas.

The first phase of soil sampling was completed prior to this submission. At two locations, small (typically 5' x 5' square) areas of dark colored soils were excavated to a depth of approximately 6 inches. One post-excavation sample from each area was taken and will be analyzed for Petroleum Hydrocarbons and Volatile Organics +15 or Base Neutral +15 (VO+15) or (BN+15) respectively. Two additional samples were taken of dark surface soils and will be analyzed for (PHC) and (VO +15) or (PHC) and (BN +15). Most of the dark soils may represent accumulation of naturally occurring organic matter, given that the dark areas were found in marshy areas.

To complete the first phase of sampling, site ground water quality and hydrology will be characterized via the installation of ground water monitoring wells, soil borings and the analysis of storm water drain sediment samples.

If necessary, a second phase of sampling will be implemented to further delineate the horizontal and vertical extent of soil contamination in the unlikely event that post excavation analyse indicate contamination or the extent of possible ground water contamination is not defined. Should soil and ground water samples be collected in the second phase, they would be analyzed for only those compounds found in the initial soil and ground water sampling phase.

Our Phase one investigation for the Sayreville Borough facility is based on well-documented site usages, past spills, and on results of shallow ground water sampling conducted at the twelve (12) monitoring wells located on the northern side of the facility. The already implemented soil sampling plan, and the proposed sediment and ground water monitoring well locations and analytical parameters are listed on Table 3-1. The soil sediment, and monitoring well locations are also shown on the site map (Attachment 7). All soil and ground water samples will be sent to Lancaster Laboratory - Lancaster, Pennsylvania for analysis.

3.1 Areas of Concern

3.1.1 Tank Farm Area (already sampled)

The Tank Farm Area contains ten (10) above ground tanks. It has secondary containment, which includes a reinforced concrete floor and concrete diked wall. Presently, seven (7) above ground tanks are being used. One tank is filled with toluene; one is filled with methyl ethyl ketone (MEK); one tank contains reclaimed solvents and four (4) tanks contain raw materials (polyols and plasticizers). The remaining three tanks are not used. The Tank Farm Area is identified on the site map (Attachment 7). A small area of dark colored soil was noticed in the southwest corner of the Tank Farm Area.

3.1.2 Spill Prevention/Stormwater Drains

Stormwater and surface water runoff enters the on-site sewer system which underlies the southeast, east, and northeast areas of the facility. This sewer system is connected by several drainage grates which drains by gravity any runoff to a central oil/water

separator located on the northern side of the office/manufacturing building. The oil/water separator is connected to the municipal septic sewer system.

Surface water runoff from the southwest area of the facility drains directly to a public sewer located in the southwest corner which leads to the MCUA stormwater sewer system.

Floor drains located inside the manufacturing building are no longer in use and are sealed. The floor drains were used from 1970-1980 to discharge cooling water from manufacturing operations to Burt's Creek.

3.1.3 Soil-Stained Areas (already remediated and sampled)

Four areas within the plant property show dark soil. The first two areas are located along the southeastern portion of the property adjacent to the property boundary fence. One area was sampled (no remediation). The third area is located west of the Flammable Hazard Waste Drum Storage Area and the fourth area is located near the truck shipping and paved parking areas.

3.1.4 Bis (2-ethylhexyl) phthalate Spill Area

In 1978, a spill occurred from a storage tank containing bis (2-ethylhexyl) phthalate. Bis (2-ethylhexyl) phthalate pooled in an area located northeast of the office building adjacent to Burt's Creek. Based on water samples taken from Burt's Creek (see Attachment 12), we suspect that there may be a potential source area of bis (2-ethylhexyl) phthalate that was not excavated after the removal of all twelve (16) storage tanks in 1983. A visible seep of clear oily liquid was observed flowing into the stream

from the general location where bis (2-ethylhexyl) phthalate was spilled.

3.2 Soil/Sediment Sampling Locations, and Analytical Parameters

3.2.1 Dark-Stained Soils

A small area of dark colored soil was noticed near the Tank Farm Area. Due to the small size of the dark-soil area, an "at risk" remediation was done and a sample was collected from the excavation and analyzed for Total Petroleum Hydrocarbon (PHC) as per EPA method 418.1 and Volatile Organic Compounds +15 (VO+15) as per EPA method 80-40. The soil sample was collected with a stainless steel spoon.

Should the soil sample analysis indicate significant levels of (PHC) or (VO+15) compounds greater than ECRA action levels, three (3) locations where dark-soils were noticed will be tested for (PHC) as per EPA method 418.1 and (VO+15) as per EPA method 80-40. The soil samples will be sampled with a stainless steel bucket auger. The proposed soil sampling depths will be 0" - 6" and 12" - 18" intervals. Each sample location will be backfilled with clean fill. Soil samples will also be tested for Volatile Organic Vapors using a portable Organic Vapor Analyzer (OVA) equipped with a flame ionization detector (FID). The results of this scanning technique will allow us to generally determine the significant presence of total volatile organic vapors in the soil samples.

Small areas of dark colored soil were noticed within an area located in the southwest corner of the facility and west of the shipping/parking lot area. Due to the small size of the dark soil areas an "at risk" remediation was done. After approximately 6

inches of soil was removed from the dark colored areas, a post excavation soil sample was collected from each area and analyzed for (PHC) as per EPA method 418.1 and (BN+15) as per EPA methods 80-50. The soil samples were collected with a stainless-steel spoon.

Should the soil sample analysis indicate significant levels of (PHC) or (BN+15) compounds greater than ECRA action levels additional soil samples will be collected at each location. Additional soil samples will be collected at 0"-6" and 12"-18" intervals with a stainless-steel bucket auger.

The soil samples for each interval will be analyzed for (PHC) as per EPA method 418.1 and (BN+15) as per EPA methods 80-50. All soil sample holes will be backfilled with clean fill. Soil samples will also be monitored for volatile organic vapors using an OVA. The results of this scanning technique will allow us to generally determine the significant presence of total volatile organic vapors in the soil samples.

3.2.2 Spill Prevention/Sewer Drains

Two sediment samples from spill prevention/sewer drains will be tested for (PHC) as per EPA method 418.1 and (BN+15) as per EPA methods 80-50. The first sediment sample will be taken from a drain located on the northeastern side and a second sample will be taken from a drain on the southwest side of the office/manufacturing facility. A water sample also will be collected from the drain located on the southwest side of the office/manufacturing facility. The water sample will be analyzed for (PHC) and (BN+15) as per EPA method 418.1 and 80-50 respectively. The sediment samples will be sampled with a stainless-steel spoon or trowel.

Sediment samples will also be monitored for volatile organic vapors using a portable OVA with (FID). The results of this scanning technique will allow us to generally determine the significant presence of total volatile organic vapors in the soil samples.

3.2.3 Bis (2-ethylhexyl) phthalate Spill Area

In order to delineate the suspected bis (2-ethylhexyl) phthalate source area, we propose to collect soil samples from a 20 and 40 foot grid network. Soil samples collected at each grid location will be collected at the surface and at approximately 1.5 foot depth intervals to the water table.

In addition to these soil samples, sediment samples will be collected at key locations along Burt's Creek. The site map shows the soil grid locations and sediment sample locations along Burt's Creek (Attachment 7).

The soil samples will be collected with a stainless-steel bucket auger. The sediment samples will be collected from Burt's Creek using a stainless-steel scoop.

All of the soil and sediment samples will be analyzed for (BN+15) as per EPA methods 80-50. All soil sample holes will be backfilled with soil cuttings.

3.3 Ground Water Monitoring Locations and Analytical Parameters

Ground water samples are presently being collected and analyzed at twelve (12) monitoring well locations across the northern end of the plant adjacent to Burt's Creek. Water samples are analyzed on

a regular basis from each monitoring well, the oil/water separator, and at key sampling points located upgradient and downgradient of Burt's Creek. Attachment 12 discusses the ongoing ground water monitoring program.

To supplement the existing ground water monitoring program, we propose to install three (3) additional ground water monitoring wells. These three (3) monitoring wells have been located to monitor upgradient ground water quality and ground water quality beneath the southwest part of the facility.

The first two monitoring wells will be installed as a shallow/deep monitoring well couplet. The third will be a single shallow monitoring well. The monitoring well couplet will include one monitoring well screened in the first ground water zone and one monitoring well screened in the deeper aquifer (beneath the shallow, clayey-silt zone). The single monitoring well will be screened in the first ground water zone.

The monitoring well couplet will be located in the southeast corner of the site (east of the Tank Farm Area) and the single monitoring well will be located west of the Hazardous Waste Drum Storage Area. The monitoring well couplet located in the southeast corner of the plant is the upgradient location.

The ground water monitoring wells will be used to monitor the ground water quality beneath the southern and eastern portions of the plant from both the upper and lower ground water zones. The monitoring wells also will be used to better determine the direction of ground water flow beneath the entire site when measured in conjunction with the existing twelve (12) monitoring wells.

All monitoring wells will be constructed of four-inch diameter threaded Schedule 40 PVC casing with ten feet of 020 slot, Schedule 40 PVC well screen. All wells will be installed using the hollow stem auger method by a licensed New Jersey Well Driller, William Stothoff, Inc. of Flemington, New Jersey. Well permits will be obtained for each ground water monitoring well. Locking steel protective housing will be cemented at the surface over each newly constructed well.

The NJDEP will be notified at least two weeks in advance of the date for ground water monitoring well installation. Continuous split-spoon sampling will be performed, as per ASTM method D-1286, at the deep monitoring well at the well couplet location. The continuous soil samples will be monitored for volatile organic vapors using a portable OVA with (FID). The results of this scanning technique will allow us to estimate the presence of total volatile organic vapors in the underlying material.

Ground water samples will be collected in accordance with NJDEP sampling guidelines, as described in the NJDEP "Water Data Acquisition Manual". The ground water at each monitoring well will be tested for VO+15 as per EPA method 624 and BN+15 as per EPA method 625.

Upon completion, monitoring wells will be developed by air surge techniques for a minimum of one hour or until pH and Specific Conductance stabilizes. The development water will be screened with an OVA with (FID). If non-detectable levels are found, Sayreville Borough facility proposes to discharge the water to the public sewer. Figure 3-1 shows the unconsolidated well construction to be used. As per NJDEP guidelines, the monitoring wells will not be sampled until a minimum of 10 days from the date of development.

Historical Data on Environmental Quality at the Facility

Since 1978, the Sayreville Borough facility has experienced several minor spills and a leaking underground storage tank. These occurrences have resulted in the installation of 12 ground water monitoring wells and a history of sampling events. Organic compounds detected in the ground water have been bis (2-ethylhexyl) phthalate, toluene, total xylenes, and benzene. The following is a chronological list of discharges and sampling events at the site.

On June 20, 1978, the facility reported a leak of bis (2-ethylhexyl) phthalate. Per recommendation of the Middlesex County Health Department, a contractor was retained for clean-up and disposal of the contaminated soil. The monitoring wells, installed by Woodward-Clyde, were sampled by Essex on March 30, 1979 for oil and grease, toluene, and xylene. Results from this sampling event revealed toluene and xylene contamination in several wells.

In July 1982, soil borings and water/other liquid samples were taken from various locations around the underground storage tank area. These samples were analyzed by Essex for toluene, MEK, and plasticizers. No toluene or MEK was detected; however, plasticizers were detected in all samples.

On August 17, 1982, Woodward-Clyde Consultants performed ground water sampling. Analytical data revealed toluene and bis (2-ethylhexyl) phthalate contamination in several wells.

In January 1983, all underground tanks were excavated, cleaned, and disposed of by Olsen and Hassold, Inc.

ATTACHMENT

B-44

Ref. No. 4 p. 129

On July 14, 1983, ground water samples were obtained from the twelve observation wells by Woodward Clyde consultants. These samples were tested by a commercial lab for benzene, toluene, total xylenes, and bis (2-ethylhexyl) phthalate. The results revealed contamination from the above mentioned compounds at several of the monitoring wells. Analytical data from the observation well 107S indicated contamination several orders of magnitude greater than the other monitoring wells. This level of contamination was consistent with historical data for that well. On January 12, 1984, the sampling was repeated. The analytical data indicated that the overall levels of contamination had decreased since the previous sampling event.

At the request of the NJDEP, the sampling of eight monitoring wells and the stream was repeated on September 24, 1984. Samples were tested for toluene, total xylene, and bis (2-ethylhexyl) phthalate. Observation well 107S again showed significant levels of toluene and xylene.

On December 13, 1985 the monitoring wells were again sampled. The only contamination detected were as follows:

- 80 ppb xylene in well 107S
- 400 ppb bis (2-ethylhexyl) phthalate upstream
- 150 ppb bis (2-ethylhexyl) phthalate downstream

The facility was again sampled from September 14 through 21, 1988 by a New Jersey certified lab (IT Corporation, Edison, New Jersey). All twelve monitoring wells were sampled as well as one downstream and one upstream sample from Burt's Creek. The only significant contamination detected was in 107 S (xylene at 400 ppb) and the upstream Burt's Creek sample bis (2-ethylhexyl phthalate at 950 ppb). The upstream sample location is located near a visible seep of clear oily liquid flowing into the creek from the general location where bis (2-ethylhexyl) phthalate was spilled.

ATTACHMENT

B-45

Ref. No. 4 n. 130

TABLE 1
MONITOR WELL WATER LEVEL ELEVATIONS
ESSEX CHEMICAL, SAYERVILLE FACILITY
SEPTEMBER 21, 1988

MONITOR WELL NO.	ELEVATION TO TOP OF PVC RISER (FT)	DEPTH TO GROUND WATER (FT)	GROUND WATER ELEVATION (FT)
OW-1S	29.51	1.31	28.20
OW-1D	29.41	1.93	27.48
OW-2S	27.74	4.56	23.18
OW-3S	27.11	6.25	20.86
OW-3D	27.15	9.10 (6.20)	18.05 (20.95)
OW-4S	29.93	7.75 (8.12)	22.18 (21.31)
OW-4D	29.79	7.52 (7.92)	22.27 (21.37)
OW-106S	26.53	1.56 (1.54)	24.97 (24.99)
OW-106D	28.79	2.16 (2.63)	26.63 (26.16)
OW-107S	30.86	6.10 (6.13)	24.76 (24.73)
OW-111S	27.03	2.03	25.00
OW-111D	25.97	1.62	24.35

* From top of PVC

() Indicates resampling after the holding times were exceeded for base
neutrals

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B-46

TABLE 2
ANALYTICAL SUMMARY OF SEPTEMBER 14 AND 19, 1988 SAMPLING (ppb)

WELL NO.	TOTAL VOC	TOTAL B/N	TOTAL METALS	TOTAL PESTICIDES	PC3
OW-1S	19.7	80	180	NO	NO
OW-1D	23.8	168	339	NO	NO
OW-2S	11.0	1325	140	NO	NO
OW-3S	22.1	128	468	NO	NO
OW-3D	23.9	205	251	NO	NO
OW-4S	27.5	91.5	1059	NO	NO
OW-4D	7.8	36	85	NO	NO
OW-106S	13.4	555	NO	NO	NO
OW-106D	23.0	16	66	NO	NO
OW-107S	825	626	33	NO	NO
OW-111S	7.5	69	44	NO	NO
OW-111D	8.3	1376	119	NO	NO
STREAM	15.8	450	143	NO	NO

ATTACHMENT B-47

TABLE 3
SUMMARY OF CHEMICAL ANALYSES (ppb)
Toluene

Monitor Well No.	3/30/79*	8/17/82**	7/14/83 ⁺	Sampling Dates		12/13/85 ⁺⁺	9/13/88 ⁺⁺⁺
				1/12/84**	9/24/84**		
1S	--	--	<1	<1	2.2	NO	NO
10	--	--	<1	0.9	1.3	NO	NO
2S	--	--	<1	1	1.1	NO	NO
3S	10	4	NO	--	--	--0	NO
30	20	1	<1	--	--	--	NO
4S	--	--	<1	<1	<1	NO	NO
40	--	--	NO	--	--	--	NO
106S	20	2	NO	<1	1.5	NO	NO
1060	20	15	4.6	<1	4.3	NO	NO
107S	30	53,400	9,300	990	1460	NO	NO
111S	20	10	<1	<1	1.5	NO	NO
1110	20	5	1.3	--	--	--	NO
Stream	--	--	--	2.4	1.1	NO	NO

- * - Essex Lab
- ** - WMC (General Testing Corp.)
- + - Chyun Associates
- ++ - Princeton Aqua Science
- +++ - IT Corporation

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TABLE 4
SUMMARY OF CHEMICAL ANALYSES (ppb)
Xylene

Monitor Well No.	Sampling Dates						
	3/30/79*	8/17/82**	7/14/83*	1/12/84**	9/24/84**	12/13/85**	9/13/88***
1S	--	--	NO	<3	1.5	NO	NO
1D	--	--	NO	<3	<1	NO	NO
2S	--	--	NO	<3	<1	NO	NO
3S	10	--	NO	--	--	--	NO
3D	20	--	NO	--	--	--	NO
4S	--	--	1.3	<3	<1	NO	NO
4D	--	--	NO	--	--	--	NO
106S	20	--	NO	<3	<1	NO	NO
106D	20	--	NO	3	<1	NO	NO
107S	30	--	450	115	440	80	400
111S	20	--	NO	<3	<1	NO	NO
111D	20	--	NO	--	--	--	NO
Stream (upstream)	--	--	--	--	--	NO	NO
Stream (Downstream)	--	--	--	--	--	19	NO

ATTACHMENT

B-49

TABLE 5
SUMMARY OF CHEMICAL ANALYSES (ppb)
Bis (2-ethylhexyl)phthalate

Monitor Well No.	Sampling Dates		7/14/83	1/12/84	9/24/84	12/13/85	9/13/88
	3/30/79	8/17/82					
1S	--	--	80	44	93	NO	10
1D	--	--	27	26	260	NO	11
2S	--	--	61	<8	220	NO	NO
3S	--	1300	25	--	--	--	NO
3D	--	1500	28	--	--	--	13
4S	--	--	64	15	25	NO	19
4D	--	--	55	--	--	--	NO
106S	--	23,000	44	82	72	NO	14
106D	--	50	75	19	33	NO	NO
107S	--	150	140	260	23	NO	14
111S	--	110	33	8	87	NO	11
111D	--	NO	77	--	--	NO	20
Stream (upstream)	--	--	--	--	--	400	950
Stream (Downstream)	--	--	--	--	--	150	

ATTACHMENT B-50

MEMORANDUM

To W. Leuchten, J. Prendergast, W. Corydon
M. Barr, M. Appelbaum, C. Benning, E. Swaszek
Subject SAYREVILLE SOIL BORING/WATER SAMPLING

Date

8/17/82

In July, we took soil borings and water samples from various points around the Sayreville tank farms. We did this to determine whether there is any soil or water contamination from toluene, MEK or the plasticizers we use. I just obtained the results of the study which follow.

These results have turned up a couple of problem areas, particularly at points B, E, F & G. Also, the results of the samples taken at R & Q indicate that we may have a spreading problem. Let's discuss getting a further study of these problems as soon as possible.

Diane
Diane Driscoll

DD:maw

Attachments

copy to D. Driscoll

ATTACHMENT B-51

NOTES ON TESTS

The soil samples are numbers A, B, B¹, C, D, E, F and G. The remaining samples - Q, R, S, and T are water or other liquids.

The soil samples were analyzed for toluene, MEK and plasticizers. No toluene or MEK were found in any of the soil samples. The report indicates plasticizer levels. They indicate primarily DOP, but may include other plasticizers.

Some of the samples say "ND". This means "Not Detectable" - the amount of contaminant, if any, is below the levels at which the analytical equipment used can detect it.

All testing was done by Dave Lynch of our Central Analytical Lab at Monmouth Junction.

ATTACHMENT B-52

Ref No. 4 D. 137.

BORING A

<u>SAMPLE</u>	<u>DEPTH</u>	<u>PLASTICIZER, ppm</u>
1	0-2'	ND
2	2-4'	1
3	4-6'	ND
4	6-8'	ND
5	8-10'	ND

BORING B

<u>SAMPLE</u>	<u>DEPTH</u>	<u>PLASTICIZER, ppm</u>
1	0-2'	930

No further samples were taken here due to a sampling problem.

BORING B₁

<u>SAMPLE</u>	<u>DEPTH</u>	<u>PLASTICIZER, ppm</u>
1	0-2'	0.5
2A	2-3'	ND
2B	3-4'	0.3
3	4'-6'6"	ND
4	6'6"-8'6"	ND
5	8'6"-10'6"	ND

ATTACHMENT

B-53

Ref No. 4 0.138

BORING C

<u>SAMPLE</u>	<u>DEPTH</u>	<u>PLASTICIZER, ppm</u>
1	0-2'	ND
2	2-4'	ND
3A	4-5'	30
3B	5-6'	2

BORING D

<u>SAMPLE</u>	<u>DEPTH</u>	<u>PLASTICIZER, ppm</u>
1	0-2'	0.4
2A	2-3'	ND
2B	3-4'	ND
3	4'-6'	No sample recovered
4	6'-8'	0.8

BORING E

<u>SAMPLE</u>	<u>DEPTH</u>	<u>PLASTICIZER, ppm</u>
1	0-2'	ND
2	2-4'	15,000
3	4-6'	2,300
4A	6-8'	ND
4B	6-8'	40
4C	6-8'	10

ATTACHMENT B-54

Ref No. 4 0.139

BORING F

<u>SAMPLE</u>	<u>DEPTH</u>	<u>PLASTICIZER, ppm</u>
1	0-2'	200
2A	2-3'	390
2B	3-4'	10

BORING G

<u>SAMPLE</u>	<u>DEPTH</u>	<u>PLASTICIZER, ppm</u>
1	0-2'	30
2A	2-3'	2
2B	3-4'	0.5
3A	4-5'	0.4
3B	5-6'	10
4A	6-7'	35
4B	7-8'	8

OTHER SAMPLES

<u>POINT</u>	<u>ANALYSIS RESULT</u>
Q	4% DOP in water, 10ppm volatile (maybe MEK)
R	DOP
S	50% DIDP, 50% SANTICIZER 711
T	DOP

NOTE: Samples S & T were an oily material skimmed from the top of water in the trench or tank farm. Q was a water sample obtained where the french drain meets the creek. R was a sample from pool of oily material located in the wooded area.

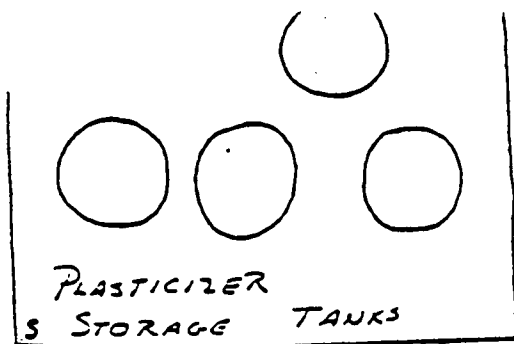
ATTACHMENT B-55
Ref. NO. 4 p. 140

WATER TABLE DEPTH

<u>POINT</u>	<u>DEPTH</u>
A	4'
B ₁	3' 10"
C	2'
D	2'
E	3'
F	3'
G	3' 3"

ATTACHMENT B-56

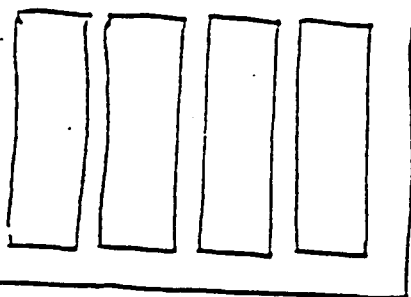
Ref. NO. 4 0.141



PLASTICIZER
STORAGE TANKS

B B₁ A

UNDERGROUND
INK
FARM



DOP DITCH T

PUDDLE
R.

WOODED
AREA

WATER
LINE

SAYREVILLE PLANT
SAMPLING POINTS

F. G.

CR

ATTACHMENT B-57 3-17-32

Ref No. 4 O. 142

Attachment 13

Sayreville Borough Facility
Sayreville, New Jersey

ECRA Site Evaluation Submission

SES Item 14

History of Facility Decontamination/Decommissioning

ATTACHMENT

B-58

ROL No 4 D. 143

History of Facility Decontamination/Decommissioning

The Sayreville Borough facility employed underground storage tanks for the storage of plasticizers, solvents, and various oils (listed in Item 8). the underground tank field was installed in 1965 and was employed for storage until January 1983, at which time, all of the underground tanks were drained, cleaned, excavated, and disposed of by Olsen and Hassold Inc., a chemical cleaning service (see attached).

ATTACHMENT

B-59

Ref No. 4 p. 144

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

NEW JERSEY GEOLOGICAL SURVEY

REQUEST FOR HYDROGEOLOGIC ASSESSMENT — ECRA PROGRAM

(To be completed whenever groundwater sampling is proposed or required as part of a Sampling Plan)

Preparer Environmental Resources Management, Inc. Date January 30, 1989

Name of Industrial Establishment Essex Specialty Products, Inc.

(ECRA Case No.88904) Sayreville Borough Facility

Address 1 Crossman Road South

City/Township Sayreville, NJ 08872

County Middlesex

USGS Quadrangle South Amboy

Latitude 40° 28' 28" Longitude 74° 19' 08"

1. Attach a site map or photo copy of the USGS "Quad" with the location of the site circled or outline in RED and any relevant information (e.g. analyses, well logs, etc.)

2. A. Are wells nearby? X Yes No

B. Are wells contaminated? X Yes No

C. To your knowledge, is there an imminent health hazard? Yes X No

D. Mark the location of any known wells near the facility, and complete the following if such information is available. (Use back of sheet for additional remarks.)

Well Owner	Distance from Edge of Property (ft.)	Depth	Use*	Remarks
1. <u>Essex Specialty Products, Inc.</u>	<u>All</u>	<u>Wells</u>	<u>M</u>	<u>See</u>
<u>Twelve (12) ground water</u>	<u>monitoring</u>	<u>range</u>		<u>Sayreville</u>
2. <u>monitoring wells</u>	<u>wells are</u>	<u>in depth</u>	<u>M</u>	<u>Borough</u>
	<u>located on</u>	<u>from</u>		<u>Facility</u>
3. <u> </u>	<u>Essex</u>	<u>approx.</u>	<u>M</u>	<u>Site Map</u>
	<u>Specialty</u>	<u>20-40 ft.</u>		<u>for specific</u>
4. <u> </u>	<u>Products, Inc.</u>			<u>locations.</u>
	<u>property.</u>			
5. <u> </u>				<u>(Attachment 7)</u>

* P = Public Supply F = Irrigation I = Industrial M = Monitoring D = Domestic

3. Briefly describe the nature of the operation (present/past) at this facility.

The Sayreville Borough Facility is involved in the manufacturing
of automotive products such as structural adhesives, sounddeadening
pads, general body sealers, trim adhesives, vibration reduction
materials, and strengthening products. Attachment 2 of the SES
provides a more detailed description of the Essex Specialty
Products, Inc. plant operations.

4. Check known or suspected sources of ground water or soil contamination:

<input type="checkbox"/> Drums	<input checked="" type="checkbox"/> Spill(s)	<input type="checkbox"/> Lagoon(s)
<input type="checkbox"/> Septic Tank(s)		<input type="checkbox"/> Seepage Pit(s)
<input checked="" type="checkbox"/> Below-ground Storage		<input type="checkbox"/> Above-ground Storage
<input type="checkbox"/> Landfill(s)		<input checked="" type="checkbox"/> Industrial Accident
<input checked="" type="checkbox"/> Discharge(s) onto Ground		<input type="checkbox"/> Other - Explain Below

5. Additional Comments

The source of ground water contamination is known to be a 1978
underground storage tank leak and/or spill of bis (2-ethylhexyl)
phthalate, also known as di (octyl) phthalate. The storage
tanks were located on the northeast side of the existing
office/manufacturing building. Additional information is provide
in Attachment 12.

ATTACHMENT

B-61

Page 2 of 2

Ref No. 4 D. 146

ATTACHMENT C

MCCARTER & ENGLISH *this letter.*
ATTORNEYS AT LAW
FOUR GATEWAY CENTER
100 MULBERRY STREET
NEWARK, NJ 07102-4096

(201) 622-4444

TELEX 178016
 TELECOPIER (201) 624-7070
 CABLE "MCCARTER" NEWARK

1810 CHAPEL AVENUE WEST
 CHERRY HILL, NEW JERSEY 08002
 (609) 662-6444
 TELECOPIER (609) 662-6203

ONE WORLD TRADE CENTER
 SUITE 2663
 NEW YORK, NEW YORK 10048
 (212) 466-9016

150 E. PALMETTO PARK ROAD
 BOCA RATON, FLORIDA 33432
 (305) 366-6500

MELLON BANK CENTER
 919 MARKET STREET
 WILMINGTON, DELAWARE 19899
 (302) 654-6010

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 HAYDEN SMITH, JR.
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 JEFFREY H. AMINOFF

LARRY S. ADAMCHIL
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 ARTHUR C. HENSLEY, JR.
 NICHOLAS CONOVER ENGLISH
 JAMES R. E. OZIAS
 WARD J. HERBERT
 OF COUNSEL

JOHN R. DROSDICK
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 * NEW YORK BAR ONLY

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 JOHN B. SISON
 VINCENT W. RICEY
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 JEFFREY T. KOSTEN
 MARK J. WARSHAUER
 AMELIA H. BOSS
 ANTHONY BARTELL
 MICHAEL C. KEEFE
 CURTIS L. MICHAEL
 PHYLLIS GUTTO
 ALAN C. THOMAS
 STEVEN L. ABRAMS
 DEBRA M. PATALKIS
 KENNETH R. AUERBACH
 PAUL A. BRADLEY
 * DELAWARE BAR ONLY
 * PENNSYLVANIA BAR ONLY

BY MESSENGER

September 12, 1988

Lance R. Miller
 New Jersey Department of Environmental Protection
 Industrial Site Evaluation Element
 401 E. State Street
 CN 028
 Trenton, New Jersey 08625

Re: Essex Chemical Corporation

Dear Mr. Miller:

DC Acquisition Corporation ("DC Acquisition"), a wholly-owned subsidiary of The Dow Chemical Company ("Dow"), recently announced its offer to purchase all the outstanding stock of Essex Chemical Corporation ("Essex Chemical"). On September 3, 1988, DC Acquisition and Essex Chemical entered into an Agreement and Plan of Merger which provides that upon the consummation of the tender offer, and assuming the tender of a sufficient number of shares and satisfaction of other conditions of the offer, DC Acquisition will be merged into Essex Chemical with Essex Chemical as the surviving corporation. The proposed date for closing of the transaction is October 4, 1988.

On behalf of DC Acquisition, we submit a General Information Submission ("GIS"), with duplicate copies, covering the seven industrial establishments operated by Essex Chemical in New Jersey. In addition, we submit an Application for an Administrative Consent Order ("ACO"), by which the proposed transaction would proceed prior to completion of the ECRA

ATTACHMENT *Cl*

Ref No. 4 D. 148

Mr. Miller
September 12, 1988
Page Two

compliance process, and a check for one thousand dollars (\$1000.00) to cover the Department's ACO review fees. As provided in the ECRA regulations at N.J.A.C. 7:26B-1.10, the fees for review of the Initial Notice documents will be submitted upon filing of the Site Evaluation Submissions for these facilities.

In addition to the seven facilities covered by the GIS, Essex Chemical operates three administrative offices in Clifton, New Jersey and a sales office in Mahwah, New Jersey. Applications for a determination that ECRA is not applicable to these offices will be filed shortly, and, we assume, will be processed by the Department before the ACO is entered. If the applicability question with regard to these four offices has not been resolved prior to entry of the ACO, we request that the offices be referenced in an attachment to the ACO and that no financial assurance be required pending NJDEP's applicability determination. *No*

Following submission of the ACO Application, DC Acquisition and Essex Chemical will begin to arrange for the requisite financial assurance for each of the seven facilities which will be covered by the ACO. Due to the number of Letters of Credit and Standby Trust Funds which must be established prior to entry of the ACO, we would appreciate as much notice as possible regarding the ACO bond amounts the Department will require. Please note that in connection with the Mortell Company facility (attachment seven to the ACO Application), a Letter of Credit has already been posted pursuant to the terms of an ACO entered into as of April 3, 1986 and amended as of August 7, 1987 (ECRA Case Nos. 86209 and 87619). Accordingly, we request that no additional financial assurance be required for this facility under an ACO issued pursuant to the enclosed Application.

*give
7 day
submit
require
for A*

We are in the process of contacting the owners of the properties leased by Essex Chemical to request that they execute the property owners' authorization in the ACO Application. As is often the case with fast-paced transactions, we may be unable to obtain all the required signatures before the scheduled closing date. Therefore, we request that the Department not delay issuance of the ACO pending receipt of these signatures. However, we will continue to urge the property owners to return the executed authorizations as soon as possible, and will forward them to the Department as they are received.

ATTACHMENT *C-2*

Ref No. 4 D. 149

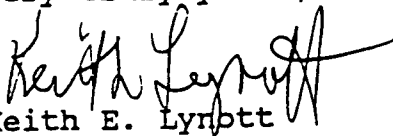
MCCARTER & ENGLISH

Mr. Miller
September 12, 1988
Page Three

Because the tender offer and merger transactions are to close on October 4, 1988, we respectfully request that the Bureau give this application its prompt attention. Thank you for your assistance. Please call if you have any questions, or need additional information.

Kindly acknowledge receipt of the enclosed original and duplicate copies of the GIS and ACO Application and check for \$1000.00 by signing the enclosed copy of this letter and returning it to our messenger.

Very truly yours,


Keith E. Lynott

Enclosures
TMC/zm
D202

cc: Joseph R. Fallon (NJDEP)

ATTACHMENT 6-3

Ref. No. 4 p. 150

ATTACHMENT D

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
INDUSTRIAL SITE EVALUATION ELEMENT
CN 028, TRENTON, N.J. 08625

FOR DEPT USE O

Date Rec'd _____

Notice No. _____

ENVIRONMENTAL CLEANUP RESPONSIBILITY ACT (ECRA)

INITIAL NOTICE

GENERAL INFORMATION SUBMISSION (GIS)

This is the first part of a two-part application form. This information must be submitted within 5 days following any applicable situation as specified at N.J. A. C. 7:26B-1.5 or any triggering event as specified at N.J. A. C. 7:26B-1.6. Please refer to the instructions and N.J.A.C. 7:26B-3.2 before filling out this form. Answer all questions. Should you encounter any problems in completing this form, we recommend that you discuss the matter with a representative from the Element. Submitting insufficient data may cause processing delays and possible postponement of your transaction. Please call (609) 633-7141 between the hours of 8:30 a.m. and 4:30 p.m. to request assistance.

PLEASE TYPE OR PRINT

Date September, 1988

1. A. Industrial Establishment

Name Essex Specialty Products, Inc. Telephone # (201) 727-2100

Street Address 1 Crossman Road South

City of Town Savreville State NJ Zip Code 08872

Municipality _____ County Middlesex

B. Tax Block Number(s) 251 Tax Lot Number(s) 2

C. Standard Industrial Classification (SIC) Number 2891

D. Current Owner(s) (Property)

Name _____ Telephone # (201) 773-6300

Firm Essex Chemical Corporation

Street Address 1401 Broad Street

Municipality Clifton State NJ Zip Code 07015

E. Current Business Operator(s) of Industrial Establishment

Name _____ Telephone # (201) 727-2100

Firm Essex Specialty Products, Inc.

Street Address 1 Crossman Road South

Municipality Savreville State NJ Zip Code 08872

F. Current Owner(s) (Business, if different from operator(s))

Name _____ Telephone # (201) 773-6300

Firm Essex Chemical Corporation

Street Address 1401 Broad Street

Municipality Clifton State NJ Zip Code 07015

G. Have there been any previous ECRA submissions by this Industrial Establishment or another Industrial Establishment which occupied the same tax block and lot number?

 Yes X No

If Yes, Name of Industrial Establishment N/A

ECRA Case No. N/A Date Submitted N/A

Current Status N/A

2. Describe the transaction in terms of the action which initiates the ECRA review. (See N.J.A.C. 7:26B-1.5&1.6)

See the Attached Summary Description of the Transaction

3. Is a cessation of operations involved at this location? Yes X No

If Yes, give the date of public release of the decision to close the facility. Date / / N/A

Is a copy of the public release enclosed? Yes No N/A

If No, state the reason N/A

4. If the transaction initiating an ECRA review is an agreement of sale or execution of an option to purchase, fill in the date of execution of that instrument plus provide one (1) copy of the document. Date 9-3-88

A. Is a sale involved? X Yes No (If no, skip 4B, C and D.)

B. Date of Agreement/Letter of Intent/Notifications of Option to Purchase 9 / 3 / 88

C. Is a copy of the agreement of sale or option to purchase enclosed? X Yes No

If No, state the reason N/A

Summary Description of the Transaction

On September 7, 1988, DC Acquisition Corporation ("DC Acquisition"), a New Jersey corporation and a wholly-owned subsidiary of The Dow Chemical Company, commenced a tender offer for all outstanding shares of capital stock, par value \$1.00 per share (the "Shares") of Essex Chemical Corporation ("Essex Chemical"), a New Jersey corporation. Upon the consummation of the tender offer, and assuming the tender of a sufficient number of shares and satisfaction of other conditions of the offer, DC Acquisition will be merged into Essex Chemical with Essex Chemical as the surviving corporation. The tender offer and merger transactions will be consummated pursuant to the terms and conditions of an Agreement and Plan of Merger (the "Agreement") dated as of September 3, 1988. The Agreement is attached to and incorporated by reference in this Application.

ATTACHMENT D-3

Ref No. 4 p. 154

D. List other parties (purchasers) to the transaction:

NAME	STREET ADDRESS & MUNICIPALITY	PHONE NO.
<u>The Dow Chemical Company</u>	<u>2030 Willard H. Dow Center</u> <u>Midland, MI 48674</u>	<u>(517) 636-2544</u>
<u>DC Acquisition Corporation</u>	<u>2030 Willard H. Dow Center</u> <u>Midland, MI 48674</u>	<u>(517) 636-2544</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

5. Date proposed for closure of operations or transfer of title October 4, 1988

6. Authorized agent designated to work with the Department

Name Irwin S. Zonis Telephone # (201) 773-6300
Firm Essex Chemical Corporation
Street Address 1401 Broad Street
Municipality Clifton State NJ Zip Code 07015

CERTIFICATIONS:

- A. The following certification shall be signed by the highest ranking individual at the site with overall responsibility for that site or activity. Where there is no individual at the site with overall responsibility for that site or activity, this certification shall be signed by the individual having responsibility for the overall operation of the site or activity.

I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of N.J.S.A. 13:1K-6 et seq., I am personally liable for the penalties set forth at N.J.S.A. 13:1K-8.

Typed/Printed Name Robert Hoffman Title Plant Manager
Signature Robert Hoffman Date 9/9/88

Sworn to and Subscribed Before Me
on this 9
Date of SEPTEMBER 19 88
Edward J. Maze
Notary EDWARD J. MAZE
A NOTARY PUBLIC OF NEW JERSEY
My Commission Expires Jan. 7, 1991

- B. The following certification shall be signed as follows:

1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, Federal or other public agency, by either a principal executive officer or ranking elected official.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate, or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of N.J.S.A. 13:1K-6 et seq., I am personally liable for the penalties set forth at N.J.S.A. 13:1K-8.

ESSEX CHEMICAL CORPORATION

Typed/Printed Name By: _____ Title _____
Signature _____ Date _____

Sworn to and Subscribed Before Me
on this _____
Date of _____ 19 ____

Notary _____

Ref. No. 4 p. 156
D-5 Page 4 of 4
ATTACHMENT

ATTACHMENT E

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
INDUSTRIAL SITE EVALUATION ELEMENT
CN 028, TRENTON, N.J. 08625

Date Rec'd _____
Notice No. _____

ENVIRONMENTAL CLEANUP RESPONSIBILITY ACT (ECRA)

INITIAL NOTICE

GENERAL INFORMATION SUBMISSION (GIS)

This is the first part of a two-part application form. This information must be submitted within 5 days following any applicable situation as specified at N.J. A. C. 7:26B-1.5 or any triggering event as specified at N.J. A. C. 7:26B-1.6. Please refer to the instructions and N.J.A.C. 7:26B-3.2 before filling out this form. Answer all questions. Should you encounter any problems in completing this form, we recommend that you discuss the matter with a representative from the Element. Submitting insufficient data may cause processing delays and possible postponement of your transaction. Please call (609) 633-7141 between the hours of 8:30 a.m. and 4:30 p.m. to request assistance.

PLEASE TYPE OR PRINT

Date September, 1988

I. A. Industrial Establishment

Name Essex Specialty Products, Inc. Telephone # (201) 727-2100

Street Address 1 Crossman Road South

City of Town Savreville State NJ Zip Code 08872

Municipality _____ County Middlesex

B. Tax Block Number(s) 366.A Tax Lot Number(s) 2

C. Standard Industrial Classification (SIC) Number 2891

D. Current Owner(s) (Property)

Name _____ Telephone # (201) 773-6300

Firm Essex Chemical Corporation

Street Address 1401 Broad Street

Municipality Clifton State NJ Zip Code 07015

E. Current Business Operator(s) of Industrial Establishment

Name _____ Telephone # (201) 727-2100

Firm Essex Specialty Products, Inc.

Street Address 1 Crossman Road South

Municipality Savreville State NJ Zip Code 08872

ATTACHMENT E-1 88848
Ref No. 4 p. 158

F. Current Owner(s) (Business, if different from operator(s))

Name _____ Telephone # (201) 773-6300Firm Essex Chemical CorporationStreet Address 1401 Broad StreetMunicipality Clifton State NJ Zip Code 07015

G. Have there been any previous ECRA submissions by this Industrial Establishment or another Industrial Establishment which occupied the same tax block and lot number?

 Yes X NoIf Yes, Name of Industrial Establishment N/AECRA Case No. N/A Date Submitted N/ACurrent Status N/A

2. Describe the transaction in terms of the action which initiates the ECRA review. (See N.J.A.C. 7:26B-1.5&1.6)

See the Attached Summary Description of the Transaction3. Is a cessation of operations involved at this location? Yes X NoIf Yes, give the date of public release of the decision to close the facility. Date / / N/AIs a copy of the public release enclosed? Yes No N/AIf No, state the reason N/A4. If the transaction initiating an ECRA review is an agreement of sale or execution of an option to purchase, fill in the date of execution of that instrument plus provide one (1) copy of the document. Date 9-3-88A. Is a sale involved? X Yes No (If no, skip 4B, C and D.)B. Date of Agreement/Letter of Intent/Notifications of Option to Purchase 9 / 3 / 88 C. Is a copy of the agreement of sale or option to purchase enclosed? X Yes NoIf No, state the reason N/AATTACHMENT E-2

202 NOV 4 0. 159

Summary Description of the Transaction

On September 7, 1988, DC Acquisition Corporation ("DC Acquisition"), a New Jersey corporation and a wholly-owned subsidiary of The Dow Chemical Company, commenced a tender offer for all outstanding shares of capital stock, par value \$1.00 per share (the "Shares") of Essex Chemical Corporation ("Essex Chemical"), a New Jersey corporation. Upon the consummation of the tender offer, and assuming the tender of a sufficient number of shares and satisfaction of other conditions of the offer, DC Acquisition will be merged into Essex Chemical with Essex Chemical as the surviving corporation. The tender offer and merger transactions will be consummated pursuant to the terms and conditions of an Agreement and Plan of Merger (the "Agreement") dated as of September 3, 1988. The Agreement is attached to and incorporated by reference in this Application.

ATTACHMENT E-3

Ref. No. 4 p. 160

D. List other parties (purchasers) to the transaction:

NAME	STREET ADDRESS & MUNICIPALITY	PHONE NO.
<u>The Dow Chemical Company</u>	<u>2030 Willard H. Dow Center</u> <u>Midland, MI 48674</u>	<u>(517)636-2544</u>
<u>DC Acquisition Corporation</u>	<u>2030 Willard H. Dow Center</u> <u>Midland, MI 48674</u>	<u>(517) 636-2544</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

5. Date proposed for closure of operations or transfer of title October 4, 1988

6. Authorized agent designated to work with the Department

Name Irwin S. Zonis Telephone # (201) 773-6300
Firm Essex Chemical Corporation
Street Address 1401 Broad Street
Municipality Clifton State NJ Zip Code 07015

CERTIFICATIONS:

- A. The following certification shall be signed by the highest ranking individual at the site with overall responsibility for that site or activity. Where there is no individual at the site with overall responsibility for that site or activity, this certification shall be signed by the individual having responsibility for the overall operation of the site or activity.

I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of N.J.S.A. 13:1K-6 et seq., I am personally liable for the penalties set forth at N.J.S.A. 13:1K-8.

Typed/Printed Name John Lowry Title Technical Director

Signature [Signature] Date 9/8/88

Sworn to and Subscribed Before Me
on this 9

Date of SEPTEMBER 19 88

[Signature]
Notary

EDWARD J. MAZE
A NOTARY PUBLIC OF NEW JERSEY
My Commission Expires Jan. 7, 1991

- B. The following certification shall be signed as follows:

1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, Federal or other public agency, by either a principal executive officer or ranking elected official.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate, or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of N.J.S.A. 13:1K-6 et seq., I am personally liable for the penalties set forth at N.J.S.A. 13:1K-8.

Typed/Printed Name _____ Title _____

Signature _____ Date _____

Sworn to and Subscribed Before Me
on this _____

Date of _____ 19 ____

Notary

CERTIFICATIONS:

- A. The following certification shall be signed by the highest ranking individual at the site with overall responsibility for that site or activity. Where there is no individual at the site with overall responsibility for that site or activity, this certification shall be signed by the individual having responsibility for the overall operation of the site or activity.

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Typed/Printed Name John Lowry Title Technical Director

Signature _____ Date _____

Sworn to and Subscribed Before Me

on this _____

Date of _____ 19 ____

Notary

- B. The following certification shall be signed as follows:

1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, Federal or other public agency, by either a principal executive officer or ranking elected official.

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Typed/Printed Name _____ Title _____

Signature *Teresa F. Nystrom* Date _____

Sworn to and Subscribed Before Me

on this 12th

Date of September 19 88

Teresa F. Nystrom
Notary

TERESA F. NYSTROM
A Notary Public of New Jersey
My Commission Expires Mar. 23, 1989

Page 4 of 4

ATTACHMENT E-6

Ref. NO. 4 P. 163

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
INDUSTRIAL SITE EVALUATION ELEMENT
CN 028, TRENTON, N.J. 08625

ENVIRONMENTAL CLEANUP RESPONSIBILITY ACT (ECRA)

INITIAL NOTICE

SITE EVALUATION SUBMISSION (SES)

This is the second part of a two-part application form. This information must be submitted within 45 days following any applicable situation as specified at N.J.A.C. 7:26B-1.5 or any triggering event as specified at N.J.A.C. 7:26B-1.6. Please refer to the instructions and N.J.A.C. 7:26B-3.2 before filling out this form. Answer all questions. Should you encounter any problems in completing this form, we recommend that you discuss the matter with a representative from the Element. Submitting incorrect or insufficient data may cause processing delays and possible postponement of your transaction. Please call (609) 633-7141 between the hours of 8:30 a.m. and 4:30 p.m. to request assistance.

PLEASE PRINT OR TYPE

Date 21 November 1988

1. Industrial Establishment

Name Essex Specialty Products, Inc. *

Address 1 Crossman Road South

City or Town Sayreville Zip Code 08872

Municipality Sayreville County Middlesex

A. Operational and Ownership History: (Attach additional sheets if necessary)

<u>Name</u>	<u>Owner/ Operator</u>	<u>From</u>	<u>To</u>	<u>Current Address</u>
ATTACHMENT "A"				

B. Brief description of past operation(s) conducted on site (Attach additional sheets if necessary)

The R&D building was built in 1982 by Essex Chemical Corp.
on vacant land.

*Facility identified in ACO application as the Research and Development Laboratory and in the ACO by NJDEP as the Sayreville facility.

ATTACHMENT E-7
202 NOV 4 0.164

2. List all federal and state environmental permits applied for, or received, or both, at this facility (*Attach additional sheets if necessary*)

Check here if no permits are involved X

A. New Jersey Bureau of Air Pollution Control

Permit Number	Certificate Number	Date of Approval or Denial	Reason for Denial (If applicable)	Expiration Date
<u>Not Applicable</u>				

B. New Jersey Pollutant Discharge Elimination System (NJPDES)

Number	Discharge Activity	Date Issued or Denied	Expiration Date	Body of Water Discharged Into
<u>Not Applicable</u>				

- C. United State Environmental Protection Agency (EPA) Identification Number and copy of the most recent generator Annual Report prepared pursuant to the New Jersey Hazardous Waste Regulations. (*If applicable*)

Same # as manufacturing facility; all generated wastes are transferred to manufacturing facility for management.

ID # NJD 002568715

Is a copy of the Annual Report attached? Yes (See Attachment #) X No

D. Resource, Conservation, Recovery Act (RCRA) Permit # Not Applicable

E. Bureau of Underground Storage Tank Registration Number(s) Not Applicable

F. All other federal, state, local governmental permits.

Agency Issuing Permit	Permit No.	Date of Approval or Denial	Expiration Date
<u>Not Applicable</u>			

12/87

3. Summary of Enforcement Actions for Violation of Environmental Laws or Regulations:

Check here if no enforcement actions are involved X

A. Date of Action _____

Section of Law or Statute violated _____

Type of Enforcement Action _____

Description of the Violation _____

How was the violation resolved? _____

B. Date of Action _____

Section of Law or Statute violated _____

Type of Enforcement Action _____

Description of the Violation _____

How was the violation resolved? _____

4. Site Map

Is this map enclosed? X Yes (See Attachment # B&C) No

If No, state the reason _____

(Attach additional pages, if necessary)

ATTACHMENT E-9

Page 3 of 3

REF. NO. 4 P. 166

5. Description of Operations:

Is this report enclosed? ☒ Yes (See Attachment # D) ☐ No

If No, state the reason _____

6. Description of Building Heating System:

A. How is the Industrial Establishment currently heated? (Oil, Gas, Electric) Gas/Electric

How long has the Industrial Establishment been heated by the above fuel/energy source: 6 years

B. Was the Industrial Establishment heated by fuel oil at any time: ☐ Yes ☒ No

Is information on the decommissioning of underground fuel oil tanks included with item No. 14 of this form?

☐ Yes ☒ No If no, explain below: Not Applicable

C. Are the results of the Integrity Evaluation for Existing Underground Fuel Oil Tanks enclosed?

☐ Yes (See Attachment # _____) ☒ No If no, state the reason: _____

Not Applicable

7. Summary of Industrial Establishment Wastewater Discharges of Sanitary and/or Industrial Waste:

A. Discharge Period

From	To	Discharge Type	Treatment By
<u>1982</u>	<u>Present</u>	<u>sanitary</u>	<u>POTW</u>
_____	_____	_____	_____
_____	_____	_____	_____

B. If the Industrial Establishment discharges sanitary and/or industrial wastes to a publicly-owned treatment plant, provide the name/address of that facility.

Name Melrose Sewer Plant Telephone # 201-721-1017

Street Address Scott Avenue

Municipality Savreville, State NJ Zip Code 08872

Date(s) of Discharge

Nature of Discharge

1. <u>1982-present</u>	<u>sanitary</u>
2. _____	_____
3. _____	_____

8. Hazardous Substance and Waste Containment Description: (Attach additional sheets if necessary) - Not Applicable

Type of Storage Unit	Date Installed	Area or Volumetric Capacity (Include units)	Material Stored	Construction Type	Location Reference	Decommissioning or Sampling Reference

NO SUBSTANCE OR WASTE IS STORED IN A CONTAINER LARGER THAN A 55 GAL. DRUM.

9. Hazardous Substance/Waste Inventory:

Material Name	Quantity (Indicate units)	Location Reference	Storage Method Container Type/Size	Typical Annual Usage	To Remain on Site (Yes or No)
Due to the nature of the research operations, monomers, pre-polymers, solvents, plasticizers, fillers, pigments, catalysts and carbon blacks are stored in small quantities in labeled containers in the different lab rooms.					
A detailed inventory of these substances has been prepared, and is available upon request.					
All of these chemicals will remain on site.					

ATTACHMENT E-11
201 Km 4 0168
Page 5 of 8

10. Discharge History of Hazardous Substances and Wastes:

- A. Have there been any discharges of hazardous substances and wastes?
 Yes (Complete Item B below) X No (Go to Item 10C)

B. Summary of Discharges and Resolutions

[illegible]

- C. Is this Industrial Establishment subject to Spill Prevention Control and Countermeasure (SPCC) per 40 CFR Part 112 or Discharge Prevention, Containment and Countermeasure (DPCC) Plan per NJAC 7:1E-4.1 requirements?

 Yes X No A copy of the Plan(s) may be required at the discretion of the Department.

11. Sampling Plan Proposal

- A. Is sampling proposed at the facility? Yes (See Attachment #) No X

If sampling is not proposed, please explain below. (Attach additional sheets if necessary)

There has been no known spill or discharge of hazardous substances or waste during the historical operation of this site, and there is no reason to suspect that a release of hazardous substances or waste has occurred.

- B. Is groundwater sampling proposed? ☐ Yes ☒ No

Note: If groundwater sampling is proposed under the plan, you must complete ECRA Form 002A "Request for Hydrogeologic Assessment" and submit it with the application.

ATTACHMENT E-12 Page 6 of 8

Ref. No. 4 p. 169

A. Is the facility Decontamination/Decommissioning Plan enclosed?

 Yes (See Attachment #) X No

B. If no, specify why decontamination/decommissioning is not considered necessary.

The facility will continue current operations.

13. Historical Data on environmental quality at the Industrial Establishment

A. Were sampling results obtained on Environmental Quality for the Industrial Establishment?

 Yes (See Attachment #) X No

B. If sampling results were obtained but are not part of this application, please explain below:

14. List any other information you are submitting or which has been formally requested by the Department:

Description

Attachment #

FEE CHECKLIST

SEE CHECKLIST

Include below a breakdown of the total fee submitted with this application. (See N.J.A.C. 7:26B-1.10 for the appropriate fees.)

Item

Amount (\$)

1. Initial Notice Review
 - i. Without Sampling Plan
 - ii. With Sampling Plan that includes only underground storage tank analysis without groundwater monitoring
 - iii. With Sampling Plan other than ii. above or iv. below
 - iv. With Sampling Plan that includes any groundwater monitoring
2. Sampling Data Review
3. Negative Declaration Review
4. Cleanup Plan Review
5. Oversight of Cleanup Plan Implementation

\$1200.00

TOTAL FEE ENCLOSED

\$ 1200.00

ARE FEES ENCLOSED? X YES

ATTACHMENT E-13

12/87

CERTIFICATIONS:

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I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of N.J.S.A. 13:1K-6 et seq., I am personally liable for the penalties set forth at N.J.S.A. 13:1K-8.

Typed/Printed Name Dr. Anil Goel Title Technical Manager

Signature Anil Goel Date Nov. 18, 1988

Sworn to and Subscribed Before Me
on this 18th

Date of November 18, 1988

NOTARY PUBLIC OF NEW JERSEY

Notary

[Signature]

- B. The following certification shall be signed as follows:

1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, Federal or other public agency, by either a principal executive officer or ranking elected official.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate, or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of N.J.S.A. 13:1K-6 et seq., I am personally liable for the penalties set forth at N.J.S.A. 13:1K-8.

Typed/Printed Name Irwin S. Zonis Title Senior Vice President

Signature _____ Date _____

Sworn to and Subscribed Before Me
on this _____

Date of _____ 19 _____

Notary _____

ATTACHMENT E14

Ref. No. 4 p. 171

CERTIFICATIONS:

- A. The following certification shall be signed by the highest ranking individual at the site with overall responsibility for that site or activity. Where there is no individual at the site with overall responsibility for that site or activity, this certification shall be signed by the individual having responsibility for the overall operation of the site or activity.

I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of N.J.S.A. 13:1K-6 et seq., I am personally liable for the penalties set forth at N.J.S.A. 13:1K-8.

Typed/Printed Name Dr. Anil Goel Title Laboratory Director

Signature _____ Date _____

Sworn to and Subscribed Before Me
on this _____
Date of _____ 19 ____

Notary

- B. The following certification shall be signed as follows:

1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, Federal or other public agency, by either a principal executive officer or ranking elected official.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate, or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of N.J.S.A. 13:1K-6 et seq., I am personally liable for the penalties set forth at N.J.S.A. 13:1K-8.

Typed/Printed Name Irwin S. Zonis Title Senior Vice President

Signature *Irwin S. Zonis* Date November 17, 1988

Sworn to and Subscribed Before Me
on this 17th
Date of Nov. 1988

Teresa F. Nyström
Notary

TERESA F. NYSTROM
A Notary Public of New Jersey
My Commission Expires Mar. 23, 1989

Page 8 of 8

ATTACHMENT

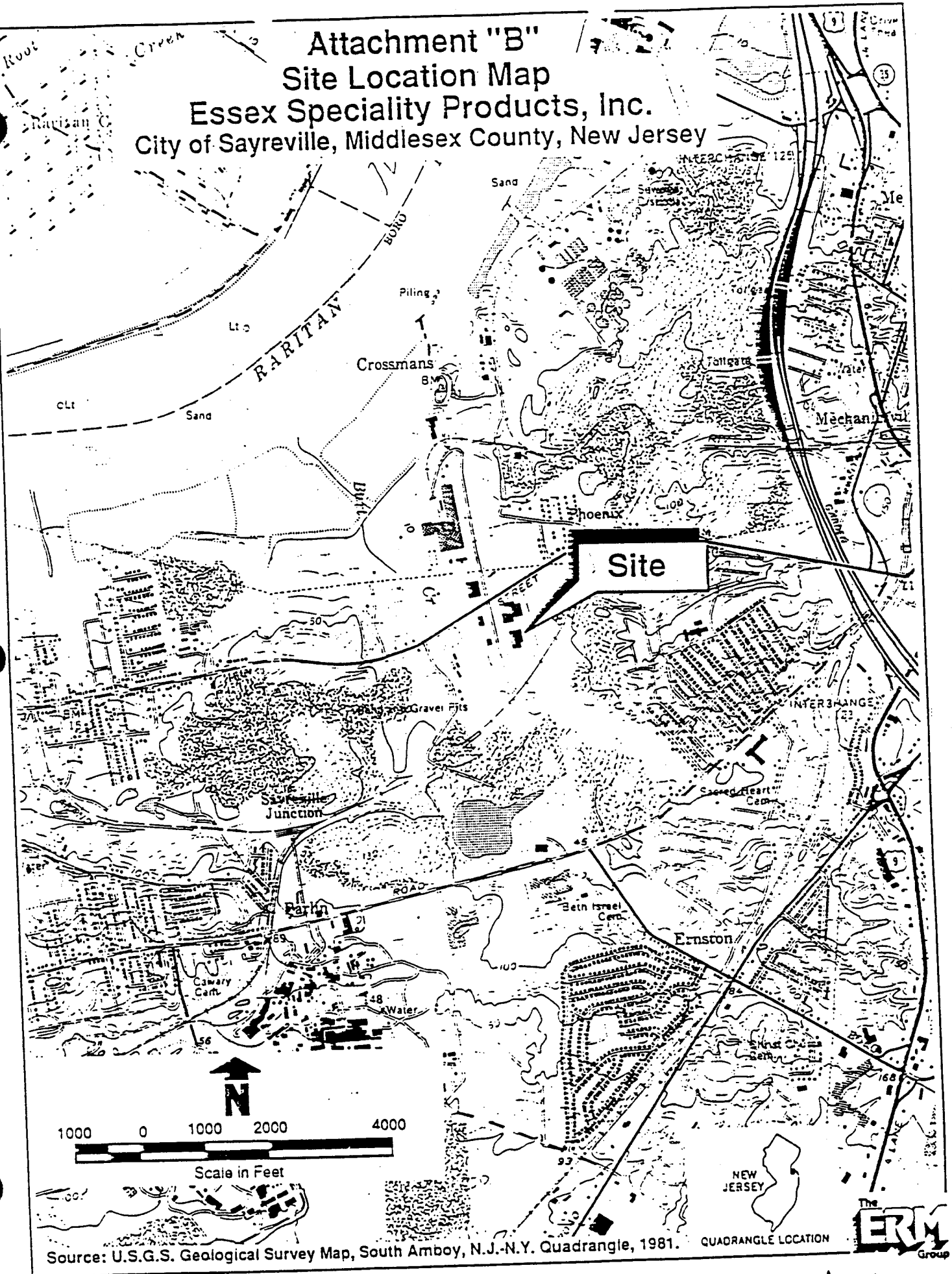
E-15
2 of No. 4 p. 172

ATTACHMENT "A"

Essex Specialty Products, Inc.
ECRA Case #88898
Operational and Ownership History

<u>Name</u>	<u>Owner Operator</u>	<u>From</u>	<u>To</u>	<u>Current Address</u>
Essex Chem. Corp.	Owner & Operator	1965	Present	1401 Broad St. Clifton, NJ
Kaplan & Sons Construction	Owner	1965	3/1967	c/o Edward Cohen 426 Morris Ave. Elizabeth, NJ
Such Clay Co.	Owner	1945	1965	P.O. Box 47 Perth Amboy, NJ

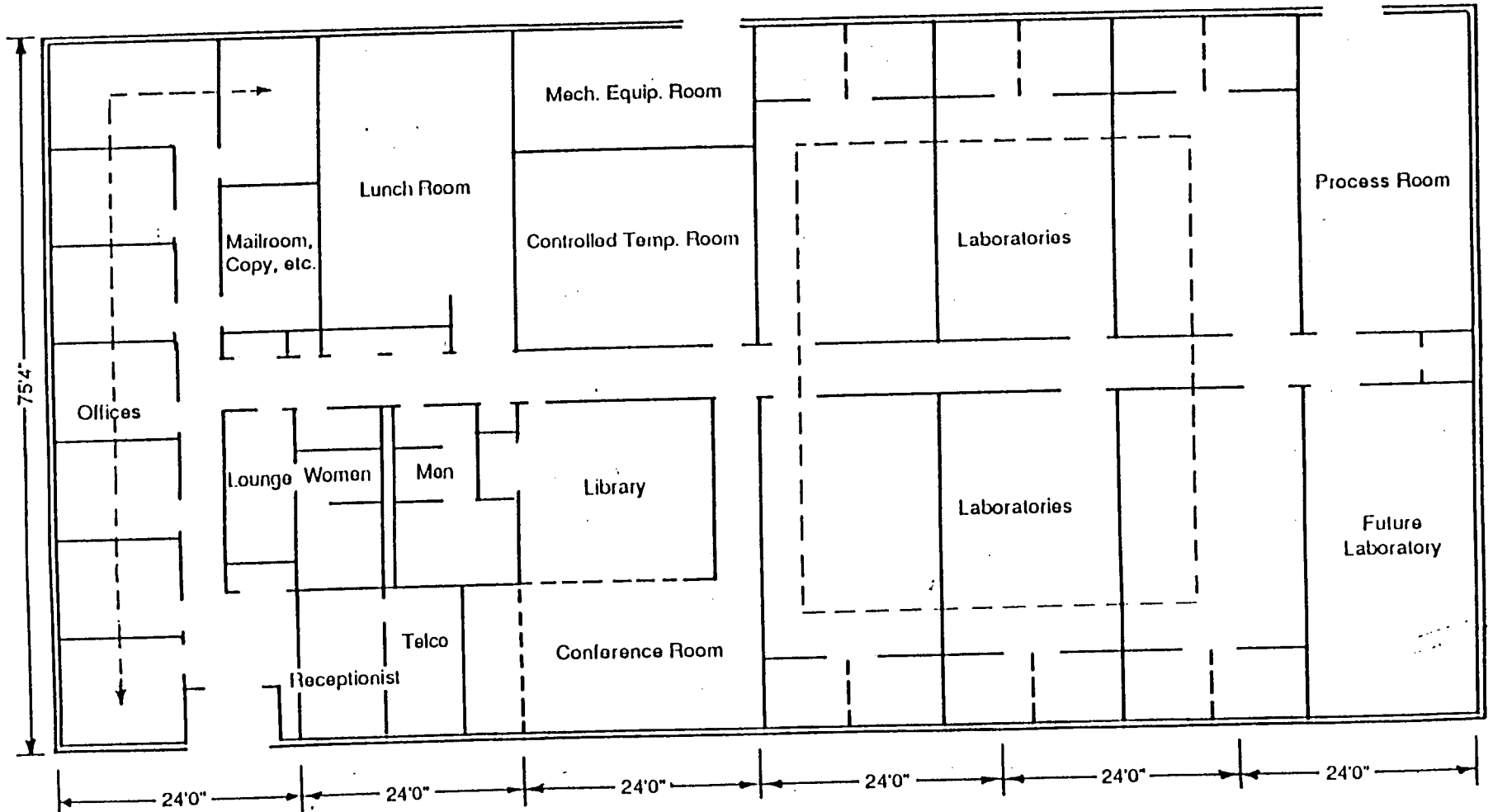
Attachment "B" Site Location Map Essex Speciality Products, Inc. City of Sayreville, Middlesex County, New Jersey



Source: U.S.G.S. Geological Survey Map, South Amboy, N.J.-N.Y. Quadrangle, 1981. QUADRANGLE LOCATION



Attachment "C"
Site Plan
Essex Speciality Products, Inc.



Scale in Feet

ATTACHMENT E-18



Ref. No. 4 P. 175

ATTACHMENT "D"

Essex Specialty Products, Inc.
ECRA Case #88898
Description of Operations

This facility houses 8 small laboratories in which research in the following categories are conducted:

Lab No.	1	Coating, Primers
	2	Structural Adhesives, Reinforcers
	3	Epoxy, Adhesives, Reinforcers
	4	Adhesive Research
	5	Castable Urethane
	6	Urethane Adhesives
	7	Bonding Adhesives
	8	Hot Melt Adhesives

The Sayreville Lab facility operates in support of the Sayreville Boro Manufacturing facility (ECRA No. 88904), and therefore, reports an SIC No. 2891.

ATTACHMENT E-19

Ref. No. 40. 176

ATTACHMENT F

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
INDUSTRIAL SITE EVALUATION ELEMENT
CN 028, TRENTON, NJ 08625

ENVIRONMENTAL CLEANUP RESPONSIBILITY ACT (ECRA)

INITIAL NOTICE

SITE EVALUATION SUBMISSION (SES)

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PLEASE PRINT OR TYPE

Date July 30, 1990

1. Industrial Establishment

Name Essex Specialty Products, Inc.

Address 1 Crossman Road South

City or Town Sayreville Zip Code 08872

Municipality _____ County Middlesex

A. Operational and Ownership History: (Attach additional sheets if necessary)

<u>Name</u>	<u>Owner/ Operator</u>	<u>From</u>	<u>To</u>	<u>Current Address</u>
<u>Essex Chemical Corporation</u>	<u>Owner</u>	<u>8/64</u>	<u>7/90</u>	<u>1401 Broad St. Clifton, NJ 07105</u>
<u>Essex Specialty Products, Inc.</u>	<u>Operator</u>	<u>8/64</u>	<u>Present</u>	<u>1 Crossman Rd. South Sayreville, NJ 08872</u>
<u>Essex Specialty Products, Inc.</u>	<u>Owner</u>	<u>7/90</u>	<u>Present</u>	<u>1 Crossman Rd. South Sayreville, NJ 08872</u>

For more information, see SES filed under ECRA Case No. 88904.

B. Brief description of past operation(s) conducted on site (Attach additional sheets if necessary)

See Attachment 1.

ATTACHMENT F-1

2. List all federal and state environmental permits applied for, or received, or both, at this facility (Attach additional sheets if necessary)

Check here if no permits are involved _____

A. New Jersey Bureau of Air Pollution Control

Permit Number	Certificate Number	Date of Approval or Denial	Reason for Denial (if applicable)	Expiration Date
See Attachment 2.				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

B. New Jersey Pollutant Discharge Elimination System (NJPDDES)

Number	Discharge Activity	Date Issued or Denied	Expiration Date	Body of Water Discharged Into
N/A	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

- C. United States Environmental Protection Agency (EPA) Identification Number and copy of the most recent generator Annual Report prepared pursuant to the New Jersey Hazardous Waste Regulations. (If applicable)

Id # NJD0002568715

Is a copy of the Annual Report attached? X Yes (See Attachment # 3) _____ No

- D. Resource, Conservation, Recover Act (RCRA) Permit # N/A

- E. Bureau of Underground Storage Tank Registration Number(s) All UST's removed in 1983.

- F. All other federal, state, local governmental permits

Agency Issuing Permit	Permit No.	Date of Approval or Denial	Expiration Date
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

3. Summary of Enforcement Actions for Violation of Environmental Laws or Regulations:

Check here if no enforcement actions are involved X

See Attachment 4 for descriptions of violations submitted under ECRA Case No. 88904. No additional enforcement actions have been initiated against ESP.

A. Date of Action _____

Section of Law or Statute violated _____

Type of Enforcement Action _____

Description of Violation _____

How was the violation resolved? _____

B. Date of Action _____

Section of Law or Statute violated _____

Type of Enforcement Action _____

Description of Violation _____

How was the violation resolved? _____

4. Site Map

Is this map enclosed? X Yes (See Attachment # 5) No

If No, state the reason _____

5. Description of Operations:

Is this report enclosed? ☒ Yes (See Attachment # 6) ☐ No

If No, state the reason _____

6. Description of Building Heating System:

A. How is the Industrial Establishment currently heated? (Oil, Gas, Electric) Gas
How long has the Industrial Establishment been heated by the above fuel/ source: 24 years energy

B. Was the Industrial Establishment heated by fuel oil at any time: ☐ Yes ☒ No
Is the information on the decommissioning of underground fuel oil tanks included with item No. 14 of this form? ☐ Yes ☒ No If no, explain below: Included with SES filed for ECRA Case No. 88904.

C. Are the results of the Integrity Evaluation for Existing Underground Fuel Oil Tanks enclosed? ☐ Yes (See Attachment #) ☒ No If no, state the reason All underground tanks were removed in 1983.

7. Summary of Industrial Establishment Wastewater Discharges of Sanitary and/or Industrial Waste:

A. Discharge Period

From	To	Discharge Type	Treatment By
1983	Present	Sanitary sewage and effluent from oil-water separator.	Middlesex County Utilities Authority (MCUA)
1965	1983	Sanitary sewage.	MCUA

B. If the Industrial Establishment discharges sanitary and/or industrial wastes to a publicly-owned treatment plant, provide the name/address of that facility.

Name MCUA Telephone # 201-721-3800

Street Address Chevalier Avenue

Municipality Sayreville State NJ Zip Code 08872

Date(s) of Discharge

Nature of Discharge

- | | |
|-------------------|---|
| 1. 1983 - Present | Sanitary sewage and effluent from oil-water separator |
| 2. 1965 - 1983 | Sanitary sewage |
| 3. _____ | _____ |

ATTACHMENT F4

8. Hazardous Substance and Waste Containment Description: (Attach additional sheets of necessary)

Type of Storage Unit	Date Installed	Area of Volumetric Capacity (include units)	Material Stored	Construction Type	Location Reference	Decommissioning or Sampling Reference
<u>Warehouse</u>	<u>Early 1970s</u>	<u>20,000 sq. ft.</u>	<u>Raw materials</u>	<u>DOT Approved metal drums</u>	<u>See Map</u>	
<u>Tank Farm</u>	<u>1981</u>	<u>30,000 gal *</u>	<u>Bulk Flammable Solvents</u>	<u>Steel TIS w/ Concrete Dike and Pad</u>	<u>See Map</u>	
<u>Production Area</u>	<u>Late 1960s</u>	<u>20,000 sq. ft.</u>	<u>Flammable Solvents</u>	<u>" " "</u>	<u>" "</u>	
<u>Hazardous Waste Storage</u>	<u>1981</u>	<u>2,000 sq. ft.</u>	<u>Flammable Solvents</u>	<u>" " "</u>	<u>" "</u>	
<u>Flammable Finished Product Storage</u>	<u>Early 1970s</u>	<u>5,000 sq. ft.</u>	<u>Flammable Materials</u>	<u>" " "</u>	<u>" "</u>	

* At present only 3 of the 10 tanks are filled with hazardous substances, (Toluene, Methyleneethyl ketone, reclaimed solvents - toluene acetone and methylene chloride).

9. Hazardous Substance/Waste Inventory:

Material Name	Quantity (indicate units)	Location Reference	Storage Method Container Type/Size	Typical Annual Usage	To Remain on Site (Yes or No)
<u>See Attachment 7</u>					

10. Discharge History of Hazardous Substances and Wastes:

A. Have there been any discharges of hazardous substances and wastes?

X Yes (Complete Item B below) No (Go to Item 10C)

B. Summary of Discharges and Resolutions

Description of Discharge Event

Response and Resolutions

Historical discharges are being addressed under ECRA Case No. 88904

C. Is this Industrial Establishment subject to Spill Prevention Control and Countermeasure (SPCC) per 40 CFR Part 112 or Discharge Prevention, Containment and Countermeasure (DPCC) Plan per NJAC 7:1E-4.1 requirements?

X Yes No A copy of the Plan(s) may be required at the discretion of the Department

11. Sampling Plan Proposal

A. Is sampling proposed at the facility? Yes (See Attachment #) No X

If sampling is not proposed, please explain below (Attach additional sheets if necessary)

Sampling has been conducted under ECRA Case No. 88904. The NJDEP is currently
reviewing the Phase II Sampling Plan submitted under ECRA Case No. 88904.

B. Is groundwater sampling proposed? Yes X No ** See Above **

Note: If groundwater sampling is proposed under the plan, you must complete ECRA Form 002A "Request for Hydrogeologic Assessment" and submit it with the application.

ATTACHMENT E-6

Page 6 of 8

Ref No. 4 P. 183

12. Decontamination/Decommissioning Plan

- A. Is the facility Decontamination/Decommissioning Plan enclosed?**

 Yes (See Attachment #) X No

8. If no, specify why decontamination/decommissioning is not considered necessary.

Current facility operations will continue.

13. Historical Data on environmental quality at the Industrial Establishment

- A. Were sampling results obtained on Environmental Quality for the Industrial Establishment?

 Yes (See Attachment #) X No

- B. If sampling results were obtained but are not part of this application, please explain below:

Sampling results are presently being reviewed by the NJDEP under ECRA Case No. 88904.

14. List any other information you are submitting or which has been formally requested by the Department:

Description

Attachment #

FEE CHECKLIST

Include below a breakdown of the total fee submitted with this application (See N.J.A.C. 7:26B-1.10 for the appropriate fees.)

Item	Amount (\$)
1. Initial Notice Review	
i. Without Sampling Plan	\$2,000.00
ii. With Sampling Plan that includes only underground storage tank analysis without groundwater monitoring	
iii. With Sampling Plan other than ii. above or iv. below	
iv. With Sampling Plan that includes any groundwater monitoring	
2. Sampling Data Review	
3. Negative Declaration Review	
4. Cleanup Plan Review	
5. Oversight of Cleanup Plan Implementation	
TOTAL FEE ENCLOSED	\$ 2,000.00

ARE FEES ENCLOSED? X YES

ATTACHMENT

Page 7 of 8

Ref. NO. 4 p. 184

CERTIFICATIONS:

- A. The following certification shall be signed by the highest ranking individual at the site with overall responsibility for that site or activity. Where there is no individual at the site with overall responsibility for that site or activity, this certification shall be signed by the individual having responsibility for the overall operation of the site or activity.

I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of N.J.S.A. 13:1K-6 et seq., I am personally liable for the penalties set forth at N.J.S.A. 13:1K-13.

Typed/Printed Name David Courter

Title Plant Manager

Signature David Courter

Date 7/26/90

Sworn and Subscribed Before Me

on this 26th

Date of JULY 1990

Linda J. Lauzon
Notary

LINDA J. LAUZON

NOTARY PUBLIC OF NEW JERSEY

MY COMMISSION EXPIRES AUGUST 1, 1991

- B. The following certification shall be signed as follows:

1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, Federal or other public agency, by either a principal executive officer or ranking elected official.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of N.J.S.A. 13:1K-6 et seq., I am personally liable for the penalties set forth at N.J.S.A. 13:1K-13.

Typed/Printed Name Paul T. O'Neill

Title Vice President

Signature Paul T. O'Neill

Date 7/27/90

Sworn and Subscribed Before Me

on this 27th

Date of JULY 1990

Linda J. Lauzon
Notary

LINDA J. LAUZON

NOTARY PUBLIC OF NEW JERSEY

MY COMMISSION EXPIRES AUGUST 1, 1991

SAYREVILLE AIR PERMITS
APC PLANT ID 15550

STACK NO.	PERMIT NO.	EQUIPMENT	ORIGINAL APPROVAL	EFFECTIVE DATE	EXPIRATION DATE
001	045375	HOT MELT	JAN 25, 1980	OCT 25, 1981	JULY 21, 1992
002	051795	388 HOCKMEYER MIXER	SEPT 15, 1981	SEPT 15, 1981	SEPT 15, 1991
003	060510	501 STORAGE TANK	JAN 28, 1982	JAN 28, 1982	JAN 28, 1992
004	060511	502 STORAGE TANK	JAN 28, 1982	JAN 28, 1982	JAN 28, 1992
005	060512	506 STORAGE TANK	JAN 28, 1982	JAN 28, 1982	JAN 28, 1992
006	066449	507 STORAGE TANK		NOV 17, 1983	NOV 17, 1993
007	066450	508 STORAGE TANK		NOV 17, 1983	NOV 17, 1993
008	066451	509 STORAGE TANK		NOV 17, 1983	NOV 17, 1993
009	066742	510 STORAGE TANK	DEC 15, 1983	DEC 15, 1983	DEC 15, 1993
010	066452	511 STORAGE TANK		NOV 17, 1983	NOV 17, 1993
011	060518	512 STORAGE TANK	JAN 28, 1982	JAN 28, 1982	JAN 28, 1992
012	060519	505 STORAGE TANK	JAN 28, 1982	JAN 28, 1982	JAN 28, 1992
013	063663	B-66 MIXER		MAY 25, 1983	MAY 18, 1989
014	064994	520 STORAGE TANK	JUNE 23, 1983	JUNE 23, 1983	JUNE 23, 1993
015	064995	521 STORAGE TANK	JUNE 23, 1983	JUNE 23, 1983	JUNE 23, 1993
016	084998	522 STORAGE TANK	JUNE 23, 1983	JUNE 23, 1983	JUNE 23, 1993
017	066362	503 STORAGE TANK		NOV 17, 1983	NOV 17, 1993
018	066363	504 STORAGE TANK			NOV 17, 1993
019	070240	PRIMER DUST COLLECTOR	DEC 27, 1984	DEC 27, 1984	SEPT 1, 1994
020	075739	BETABRACE VAC	SEPT 15, 1986	SEPT 15, 1986	SEPT 15, 1991
021	076113	BETA DUST COLL	NOV 5, 1986	NOV 5, 1986	JULY 16, 1990
023	088903	HOCKMEYER VAC EXHAUST	NOV 23, 1988	FEB 21, 1989	AUG 14, 1990
024	091195	HOCK 393	JUNE 8, 1989	SEPT 8, 1989	AUG 31, 1990
025	092347	25 PLASTISOL MIXER	NOV 3, 1989	NOV 3, 1989	JULY 30, 1990

ATTACHMENT E-9
Ref. NO 4 D.186

**NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
HAZARDOUS WASTE GENERATOR ANNUAL REPORT 1989
-REPORT FORM-**

1. Generator Name Essex Specialty Products, Inc.
2. USEPA ID Number NJD 002568715
3. Site Address 1 Crossman Road, Sayreville, NJ 08872
4. Transporter Name Continental Carriers Corp.
5. Transporter USEPA ID Number NJD 990720658
6. TSD Facility Name Safety-Kleen Corp.
7. TSD Facility EPA ID Number NJD 002 182897
8. TSD Address 1200 Sylvan Street, Linden, N.J. 07036

9.	Waste	Waste	DOT Haz	Total	
A.) <u>Number</u>	B.) <u>Description</u>	C.) <u>Class</u>	D.) <u>Quantity</u>	E.) <u>Units</u>	
(1)	(11)	(11 or J)	(13)	(14)	
F005	RQ Waste Flammable Liquid N.O.S Flammable	UN 1993	22,973	G	

ATTACHMENT F-10

Ref. No. 4 p. 187

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
HAZARDOUS WASTE GENERATOR ANNUAL REPORT 1989
CERTIFICATION FORM

ITEM 1 USEPA Identification Number: NJD 0025 68715

ITEM 2 Generator (Company) Name: Essex Specialty Products, Inc.

ITEM 3 Contact Person: Deborah Rosenthal

ITEM 4 Phone Number: (201) 773-1569

ITEM 5 Certification:

I certify that the information given in this annual report is true, accurate and complete.

Deborah Rosenthal Deborah Rosenthal 4/17/90
(Print or type name) (Signature) (Date)

ITEM 6

- A ☐ This site (company) generated less than 1.33 tons of hazardous waste for the calendar year 1989 (No Fee)
- B ☐ This site (company) generated greater than 1.33 tons of hazardous waste but less than 10 tons of hazardous waste during the calendar year 1989 (Fee \$200)
- C ☐ This site (company) generated greater than 10 tons of hazardous but less than 100 tons of hazardous waste during the calendar year (Fee \$300)
- D ☒ This site (company) generated greater than 100 tons of hazardous waste during the calendar year (Fee \$400)

ITEM 7 Federal Vendor Identification Number

* Please submit check with your completed report.

ATTACHMENT E-11

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
HAZARDOUS WASTE GENERATOR ANNUAL REPORT 1989
-REPORT FORM-

1. Generator Name Essex Specialty Products, Inc.
2. USEPA ID Number NJD 0025 68715
3. Site Address 1 Crossman Road, Sayreville, N.J. 08872
4. Transporter Name NAPPI Trucking Corp.
5. Transporter USEPA ID Number NJD 000813477
6. TSD Facility Name SAFETY-KLEEN CORP.
7. TSD Facility EPA ID Number NJD 00218 2897
8. TSD Address 1200 Sylvan St. Linden, N.J. 07036

9.	Waste A.) <u>Number</u> (I)	Waste B.) <u>Description</u> (11)	DOT Haz C.) <u>Class</u> (11 or J)	Total D.) <u>Quantity</u> (13)	E.) <u>Units</u> (14)
	F005	RQ Waste Flammable Liquid N.O.S. Flammable Liquid	UN 1993	6,536	G

NOTE: For each combination of transporter and treatment, storage and disposal facility (TSDF), list the TOTAL quantity manifested for each waste type

ATTACHMENT

E-42

**NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
HAZARDOUS WASTE GENERATOR ANNUAL REPORT 1989
-REPORT FORM-**

1. Generator Name Essex Specialty Products, Inc.
2. USEPA ID Number NJD 002568715
3. Site Address 1 Crossman Road, Sayreville, N.J. 08872
4. Transporter Name Applied Technology Trans. Inc.
5. Transporter USEPA ID Number NJD 099287484
6. TSD Facility Name Envirosafe Services Inc./Fondessy Enterprises
7. TSD Facility EPA ID Number OHD 045243706
8. TSD Address 876 Otter Creek Rd., Oregon, OH 43716

9.	Waste A.) <u>Number</u> (I)	Waste B.) <u>Description</u> (11)	DOT Haz C.) <u>Class</u> (11 or J)	Total D.) <u>Quantity</u> (13)	E.) <u>Units</u> (14)
	D001	RQ 100 (EPA Ignitability) Waste Flammable Solid. N.O.S	UN 1325	9444	G

NOTE: For each combination of transporter and treatment, storage and disposal facility (TSDF), list the TOTAL quantity manifested for each waste type

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
HAZARDOUS WASTE GENERATOR ANNUAL REPORT 1989
WASTE SUMMARY FORM

Generator (Company) Name

US EPA ID Number

Directions

Please indicate below the total quantity of hazardous waste manifested during the 1989 report year for each unit of measure. Enter the units of measure as they appeared in item #14 of the manifest. Do not convert one form of unit of measure to another.

38,953 G - Gallons (liquids only)

 P - Pounds

 T - Tons

 Y - Cubic Yards

 L - Liters (Liquids only)

 K - Kilograms

ATTACHMENT E-14

ATTACHMENT G

02-8906-09-PA
REV. NO. 0

FINAL DRAFT
PRELIMINARY ASSESSMENT
ESSEX CHEMICAL CORP.
SAYREVILLE, MIDDLESEX COUNTY, NEW JERSEY


PREPARED UNDER
TECHNICAL DIRECTIVE DOCUMENT NO. 02-8906-09
CONTRACT NO. 68-01-7346

FOR THE
ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

AUGUST 18, 1989

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY:


ANTHONY F. CULMONE, JR.
PROJECT MANAGER


JOHN HARRISON
SITE MANAGER

REVIEWED/APPROVED BY:


RONALD M. NAMAN
FACILITY OFFICE MANAGER

ATTACHMENT 64

Ref. No. 4 p. 193

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT

PART I: SITE INFORMATION

1. Site Name/Alias -Essex Chemical Corp./Essex Specialty Products
 Street 1 Crossman Road South
 City Sayreville State New Jersey Zip 08872
 County Middlesex County Code 23 Cong. Dist. 06
3. EPA ID No. NJD002568715
4. Latitude 40° 28' 31" N Longitude 74° 19' 08" W
 USGS Quad. South Amboy
5. Owner Essex Chemical Corp. Tel. No. (201) 773-6300
 Street 1401 Broad Street
 City Clifton State New Jersey Zip 07015
6. Operator Essex Chemical Corp. Tel. No. (201) 727-2100
 Street 1 Crossman Road South
 City Sayreville State New Jersey Zip 08872
7. Type of Ownership
☒ Private ☐ Federal ☐ State
☐ County ☐ Municipal ☐ Unknown ☐ Other _____
8. Owner/Operator Notification on File
☒ RCRA 3001 Date 10/09/80 ☐ CERCLA 103c Date _____
☐ None ☐ Unknown
9. Permit Information

Permit	Permit No.	Date Issued	Expiration Date	Comments
<u>NJDEP</u>	<u>045375</u>	<u>Unknown</u>	<u>Unknown</u>	<u>Permit to construct, install, and operate air pollution equipment.</u>
<u>NJPDES</u>	<u>NJ0003093</u>	<u>Unknown</u>	<u>Unknown</u>	

ATTACHMENT 6-2

Ref. No. 4 p. 194

10. Site Status

☒ Active☐ Inactive☐ Unknown11. Years of Operation 4/1/65 to Present

12. Identify the types of waste units (e.g., landfill, surface impoundment, piles, stained soil, above- or below-ground tanks or containers, land treatment, etc.) on site. Initiate as many waste unit numbers as needed to identify all waste sources on site.

(a) Waste Management Areas

Waste Unit No.	Waste Unit Type	Facility Name for Unit
1	<u>Drums</u>	<u>Outdoor Storage Containers</u>
2	<u>Former Underground Storage Tanks</u>	<u>Underground Storage Tanks</u>

(b) Other Areas of Concern

Identify any miscellaneous spills, dumping, etc. on site; describe the materials and identify their locations on site.

It was reported in a Resource Conservation and Recovery Act (RCRA) report dated September 26, 1985 that a spill occurred in 1979 and approximately 1000 gallons of bis-2-ethyl hexyl phthalate was released to the soil. Documentation indicated that a nearby stream may have been contaminated by the spill of bis-2-ethyl hexyl phthalate. In addition, on September 12, 1984 an anonymous complaint stated that there was a release of an unknown substance into a stream. Also, it was reported that a sheen was observed on the stream that may be attributable to the spill of the bis-2-ethyl hexyl phthalate.

13. Information available from

Contact <u>Amy Brochu</u>	Agency <u>U.S. EPA</u>	Tel. No. <u>(201) 906-6802</u>
Preparer <u>John Harrison</u>	Agency <u>NUS Corp. Region 2 FIT</u>	Date <u>August 18, 1989</u>

ATTACHMENT 6

Ref. NO. 4 p. 195

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following six items.

Waste Unit 1 - Drums Outdoor Storage Containers

1. Identify the RCRA status and permit history, if applicable, and the age of the waste unit.
Operations at the facility began on April 1, 1965. On November 18, 1980, the facility was listed as both a generator and a treatment, storage or disposal facility (TSD) for containerized storage activity (SO1), surface impoundment treatment (TO2), and hazardous waste incineration (TO3). The TO2 and TO3 units were not constructed when it was determined that hazardous waste could be disposed of off site within 90 days. On August 18, 1983, the facility was delisted from TSD to generator because the TO2 and TO3 process codes were inappropriately filed since hazardous waste incineration and surface impoundment did not occur. The age of the waste unit is unknown; however, drum storage could have occurred since the facility began operations in 1965.
2. Describe the location of the waste unit and identify clearly on the site map.
The drum storage area is situated to the south of the main building, approximately 200 feet from Crossman Road South.
3. Identify the size or quantity of the waste unit (e.g., area or volume of a landfill or surface impoundment, number and capacity of drums or tanks). Specify the quantity of hazardous substances in the waste unit.
During a New Jersey Department of Environmental Protection (NJDEP) inspection on February 4, 1987, it was reported that there were 80 drums of flammable liquid waste, 15 drums of alkaline corrosive, and 82 drums of non-hazardous solid waste present on the site. In addition, an off-site reconnaissance performed by NUS Corp., Region 2 FIT on July 13, 1989, observed approximately 100 drums on a concrete pad in the rear of the property.
4. Identify the physical state(s) of the waste type(s) as disposed of in the waste unit. The physical state(s) should be categorized as follows: solid, powder or fines, sludge, slurry, liquid, or gas.
The physical states of the wastes stored in drums were liquids and solids.
5. Identify specific hazardous substance(s) known or suspected to be present in the waste unit.
The hazardous substances used at the facility may be contained in the wastes generated: These substances include bis-2-ethyl hexyl phthalate, toluene, methyl ethyl ketone, xylene and various other solvents.
6. Describe the containment of the waste unit as it relates to contaminant migration via groundwater, surface water, and air.
As reported by the NJDEP on February 4, 1987, drums were in good condition. The presence of containment features such as an impermeable floor, berms, or diking are unknown; therefore, the potential for contaminant migration cannot be fully assessed.

Ref. Nos. 1, 2, 3, 4, 5, 6, 7, 26

ATTACHMENT G-4

Ref. No. 4 p. 196

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following six items.

Waste Unit 2 - Former Underground Storage Tanks, Underground Storage Tanks

1. Identify the RCRA status and permit history, if applicable, and the age of the waste unit.

Operations at the facility began on April 1, 1965. On November 18, 1980, the facility was listed as both a generator and a treatment, storage or disposal facility (TSD) for containerized storage activity (SO1), surface impoundment treatment (TO2), and hazardous waste incineration (TO3). The TO2 and TO3 units were not built when it was determined that hazardous waste could be disposed of off site within 90 days. On August 18, 1983, the facility was delisted from TSD to generator because the TO2 and TO3 process codes were inappropriately filed since hazardous waste incineration and surface impoundment did not occur. It was noted in a RCRA evaluation form dated September 26, 1985 that the facility had utilized underground storage tanks for raw materials. It was noted that some of these tanks leaked and groundwater contamination did occur. The underground tanks and contaminated soil were removed and 10 monitoring wells were installed on the site. The dates of when leaks of storage tanks occurred, the excavation of contaminated soil, and the installation of monitoring wells are unknown.

2. Describe the location of the waste unit and identify clearly on the site map.

The former underground storage tank area is located in the northern part of the property, approximately 75 feet from Main Street.

3. Identify the size or quantity of the waste unit (e.g., area or volume of a landfill or surface impoundment, number and capacity of drums or tanks). Specify the quantity of hazardous substances in the waste unit.

The size and capacity of the tanks are not documented in the available information. The actual quantity of raw materials in the tanks at the time they were buried is unknown, as is the volume of soil that had been contaminated by leakage from the tanks. However, reference information indicated that approximately 15 underground storage tanks may have existed.

4. Identify the physical state(s) of the waste type(s) as disposed of in the waste unit. The physical state(s) should be categorized as follows: solid, powder or fines, sludge, slurry, liquid, or gas.

The physical state of the raw materials stored in tanks was liquid.

5. Identify specific hazardous substance(s) known or suspected to be present in the waste unit.

The specific hazardous substances known to be in the waste unit were various solvents.

6. Describe the containment of the waste unit as it relates to contaminant migration via groundwater, surface water, and air.

As noted in a RCRA evaluation form dated September 26, 1985, in 1979 groundwater contamination resulted from the leaking underground storage tanks which contained raw materials (solvents). It is believed that the tanks had deteriorated. Therefore, there was little or no containment to prevent contaminants from migrating to groundwater. Any containment features such as a compatible liner, run-on diversion structures, or berms and diking are unknown.

Ref. Nos. 1, 2, 3, 4, 5, 6, 7, 26

ATTACHMENT 6-5

Ref No. 4 p. 197

PART III: HAZARD ASSESSMENT

GROUNDWATER ROUTE

1. Describe the likelihood of a release of contaminant(s) to the groundwater as follows: observed, alleged, potential, or none. Identify the contaminant(s) detected or suspected, and provide a rationale for attributing the contaminant(s) to the facility.

Groundwater contamination has reportedly occurred from the site. A RCRA evaluation form dated September 26, 1985 noted that in 1979 groundwater contamination resulted from leaking underground storage tanks of raw materials (solvents). Any containment features such as compatible liner and run-on diversion structures are unknown. Contaminants allegedly introduced to the groundwater include various solvents.

Ref. Nos. 1, 2, 26

2. Describe the aquifer of concern; include information such as depth, thickness, geologic composition, permeability, overlying strata, confining layers, interconnections, discontinuities, depth to water table, groundwater flow direction.

The site is located in the Atlantic Coastal Plain of Central New Jersey. Underlying the site is the Raritan and Magothy Formations of Late Cretaceous Age. The upper aquifer is the Old Bridge Sand, which will be evaluated as the aquifer of concern. It is underlain by the Woodbridge Clay, the Sayreville Sand, and the South Amboy Fire Clay. They separate the Old Bridge Sand from the Farrington Sand, which composes the lower aquifer. The Old Bridge Sand consists mainly of fine to coarse grained white to yellow sand with a permeability value of 10^{-3} - 10^{-5} cm/sec. The thickness of the Old Bridge Sand ranges from 80 feet to 110 feet. The Old Bridge Sand is overlain by unconsolidated or poorly consolidated sands and clays with a permeability value of 10^{-5} - 10^{-7} cm/sec. The direction of groundwater flow is east to west. The depth to groundwater in the vicinity is approximately 25 feet, based on well logs.

Ref. Nos. 8, 9, 10, 11, 12, 17

3. Is a designated sole source aquifer within 3 miles of the site?

The New Jersey Coastal Plain Aquifer System has been designated as a sole source aquifer.

Ref. No. 13

4. What is the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern?

Since the lowest point of waste disposal/storage is not known, it is assumed that the underground tanks were located at least 6 feet underground. The depth to the water table is approximately 25 feet. Therefore, the depth from the lowest point of waste storage to the saturated zone of the aquifer of concern is approximately 19 feet.

Ref. Nos. 1, 12

5. What is the permeability value of the least permeable continuous intervening stratum between the ground surface and the aquifer of concern?

The unsaturated zone consists of unconsolidated or poorly consolidated sands and clays with a permeability value of 10^{-5} - 10^{-7} cm/sec.

Ref. Nos. 8, 9, 10, 11, 17

6. What is the net precipitation for the area?

Net annual precipitation is approximately 11 inches

Ref. No. 17

ATTACHMENT

6-6

Ref No. 4 0.198

7. Identify uses of groundwater within 3 miles of the site (i.e., private drinking source, municipal source, commercial, industrial, irrigation, unusable).

The groundwater is a major source for drinking water and is used for industrial purposes within 3 miles of the site.

Ref. Nos. 12, 15, 16

8. What is the distance to and depth of the nearest well that is currently used for drinking or irrigation purposes?

Distance Approximately 1.6 miles

Depth 48 feet

Ref. No. 12

9. Identify the population served by the aquifer of concern within a 3-mile radius of the site.

The aquifer of concern serves approximately 46,500 people within 3 miles of the site.

Ref. Nos. 15, 16

SURFACE WATER ROUTE

10. Describe the likelihood of a release of contaminant(s) to surface water as follows: observed, alleged, potential, or none. Identify the contaminant(s) detected or suspected, and provide a rationale for attributing the contaminants to the facility.

Surface water contamination has reportedly occurred resulting from a spill of bis-2-ethyl hexyl phthalate. As noted in a RCRA evaluation form dated September 26, 1985, in 1979, 1,000 gallons of bis-2-ethyl hexyl phthalate was spilled, and caused contamination of Burt Creek. Any containment features such as diversion structures, compatible liners or diking on the site are unknown. The source of the spill was not indicated in the report.

Ref. Nos. 1, 2, 25

11. Identify and locate the nearest downslope surface water. If possible, include a description of possible surface drainage patterns from the site.

The nearest downslope surface water is Burt Creek. The stream is located approximately 1000 feet to the west of the site, and flows in a northerly direction for approximately 0.75 mile before it discharges into the Raritan River.

Ref. No. 25

12. What is the facility slope in percent? (Facility slope is measured from the highest point of deposited hazardous waste to the most downhill point of the waste area or to where contamination is detected.)

The facility slope is estimated to be less than 1 percent.

Ref. Nos. 20, 25

13. What is the slope of the intervening terrain in percent? (Intervening terrain slope is measured from the most downhill point of the waste area to the probable point of entry to surface water.)

The slope of intervening terrain is estimated to be less than 1 percent.

Ref. No. 25

ATTACHMENT

6-7

Ref. No. 4 p. 199

14. What is the 1-year 24-hour rainfall?

Approximately 2.7 inches.

Ref. No. 17

15. What is the distance to the nearest downslope surface water? Measure the distance along a course that runoff can be expected to follow.

The nearest downslope surface water is Burt Creek which is located approximately 1000 feet west of the site. Burt Creek flows approximately 0.75 mile before it discharges into the Raritan River.

Ref. No. 25

16. Identify uses of surface waters within 3 miles downstream of the site (i.e., drinking, irrigation, recreation, commercial, industrial, not used).

The Raritan River is used for recreational and industrial purposes within 3 miles downstream of the site.

Ref. Nos. 18, 22

17. Describe any wetlands, greater than 5 acres in area, within 2 miles downstream of the site. Include whether it is a freshwater or coastal wetland.

There are several coastal wetlands located within 2 miles downstream of the site. The nearest wetland described as an estuarine intertidal emergent wetland, is located approximately 0.4 mile to the northwest.

Ref. Nos. 24, 25

18. Describe any critical habitats of federally listed endangered species within 2 miles of the site along the migration path.

There are no critical habitats of any federally listed endangered species within 2 miles of the site.

Ref. No. 23

19. What is the distance to the nearest sensitive environment along or contiguous to the migration path (if any exist within 2 miles)?

A wetland described as a estuarine intertidal emergent wetland is located approximately 0.4 mile to the northwest.

Ref. No. 23

20. Identify the population served or acres of food crops irrigated by surface water intakes within 3 miles downstream of the site and the distance to the intake(s).

There are no known surface water intakes within 3 miles downstream of the site.

Ref. Nos. 14, 21

21. What is the state water quality classification of the water body of concern?

The NJ State Water Quality Standards classify Burt Creek as FW2-NT and the Raritan River as SE1.

Ref. No. 22

ATTACHMENT

6-8
Ref. No. 4 p. 200

22. Describe any apparent biota contamination that is attributable to the site.
There is no known biota contamination attributable to the site.
Ref. Nos. 1, 2, 20

AIR ROUTE

23. Describe the likelihood of a release of contaminant(s) to the air as follows: observed, alleged, potential, none. Identify the contaminant(s) detected or suspected, and provide a rationale for attributing the contaminant(s) to the facility.

There have been no observed or alleged incidents of a release of contaminants to the air at the site. However, there is potential for a release to the air because of a bis-2-ethyl hexyl phthalate spill.

Ref. Nos. 1, 2, 20, 26

24. What is the population within a 4-mile radius of the site?
Approximately 100,900 people live within 4 miles of the site.
Ref. No. 19

FIRE AND EXPLOSION

25. Describe the potential for a fire or explosion to occur with respect to the hazardous substance(s) known or suspected to be present on site. Identify the hazardous substance(s) and the method of storage or containment associated with each.

There is a potential for a fire or explosion to occur with respect to contaminants stored on site. An inspection performed by the NJDEP on February 4, 1987, reported that approximately 86 drums of flammable waste were being stored in the drum storage area. The contaminants of concern are bis-2-ethyl hexyl phthalate, toluene, methyl ethyl ketone, xylene and various other solvents which are volatile organic compounds.

Ref. Nos. 1, 2, 20, 26

26. What is the population within a 2-mile radius of the hazardous substance(s) at the facility?
Approximately 25,500 people live within 2 miles of the site.
Ref. No. 19

DIRECT CONTACT/ON-SITE EXPOSURE

27. Describe the potential for direct contact with hazardous substance(s) stored in any of the waste units on site or deposited in on-site soils. Identify the hazardous substance(s) and the accessibility of the waste unit.

There is little potential for direct contact with contaminants stored in the waste units on site. The drum storage area and storage tanks are surrounded by a chain link fence. However, potential exists for direct contact off site since contaminants reportedly have migrated to Burt Creek, which is accessible to the public.

Ref. Nos. 1, 2, 20

ATTACHMENT 6-9

Ref. No. 4 p. 201

28. How many residents live on a property whose boundaries encompass any part of an area contaminated by the site?

There are no residences bordering any part of the area contaminated by the site.

Ref. Nos. 20, 25

29. What is the population within a 1-mile radius of the site?

Approximately 4,300 people live within 1 mile of the site.

Ref. No. 19

ATTACHMENT G-10

Ref. No. 4 p. 20

PART IV: SITE SUMMARY AND RECOMMENDATIONS

Essex Chemical Corp. is an active facility located in a urban/commercial/industrial area of Sayreville, Middlesex County, New Jersey. The property is owned and operated by Essex Chemical Corp. and is located at 1 Crossmans Road South. This division of Essex Chemical Corp. is also known as Essex Specialty Products. From 1965 to the present, the facility has been involved in the production and manufacturing of fiberglass sheets with adhesive backing for automobile body panels.

On November 18, 1980, the facility was listed as both a generator and a treatment, storage or disposal facility (TSD) for containerized storage activity, surface impoundment, treatment and hazardous waste incineration. The surface impoundment and incinerator were not constructed when it was determined that hazardous waste could be disposed of off site within 90 days. On August 18, 1983, the facility was delisted from TSD status to generator only.

The facility formerly utilized underground storage tanks for raw materials. It was reported that some of these tanks leaked and groundwater contamination did occur. The underground tanks and contaminated soil were removed and 10 monitoring wells were installed throughout the site. The dates of when the leaks of storage tanks occurred, the contaminated soil was excavated and the monitoring wells were installed are unknown. In 1979, surface water contamination reportedly did occur due to a spill of bis-2-ethyl hexyl phthalate. In addition, a sheen was noted on a stream approximately 1000 feet west of the site, and is believed to be due to the spill of bis-2-ethyl hexyl phthalate. It was noted that the facility had placed absorbent pillows into the stream to soak up any contaminants on the surface. The facility stores drums on an outdoor storage pad in the rear of the property. As reported by the NJDEP on February 4, 1987, drums were in good condition. However, any containment features such as an impermeable floor, berms or diking are unknown. During an off-site reconnaissance performed on July 13, 1989 drums were observed on a macadam pad with diking present. It was also observed that there is a potential for direct contact since contaminants allegedly migrated off site to Burt Creek, which is accessible to the public. Contaminants suspected to be on site include bis-2-ethyl hexyl phthalate, toluene, methyl ethyl ketone, xylene and various other solvents.

Based on the reported contamination of the groundwater and the surface water potentially attributable to the site, the dependence of the surrounding population on groundwater as a source of potable water, and the potential for direct contact due to the potential contamination of surface water, the site is recommended for a **MEDIUM PRIORITY** site inspection. Groundwater and soil sampling should be conducted to assess the potential threat of contamination to the aquifer. Surface water/sediment sampling should be conducted to determine if there is off-site migration of contaminants.

ATTACHMENT G-11
Ref. NO. 4 p. 203

ATTACHMENT H

Ref No. 4 o. 204

MEMO

TO: FILE

FROM: ANDREW CYR NJDEPE/DRPSR/BSA

SUBJECT: PRELIMINARY SAMPLING ASSESSMENT ESSEX SPECIALITY PRODUCTS SAYREVILLE,
NEW JERSEY OCTOBER 15, 1991.

ON OCTOBER 15, 1991 JOE STEFANONI AND THE WRITER BOTH OF THE NJDEPE/BSA CONDUCTED AN INSPECTION OF ESSEX SPECIALITY PRODUCTS IN ACCORDANCE WITH THE CERCLA SITE INSPECTION PROGRAM. WE ARRIVED ON SITE AT 0943 HOURS. THE WEATHER WAS COOL, TEMP APPROX. 60 DEGREES, OVERCAST AND IT BEGAN TO RAIN DURING THE INSPECTION. WE MET WITH DEBBIE ROSENTHAL, ENVIRONMENTAL SPECIALIST OF ESSEX. I EXPLAINED TO MS. ROSENTHAL THE REASON FOR THE INSPECTION AND ASKED A FEW QUESTIONS. DURING THE CONVERSATION MS. ROSENTHAL STATED THAT APPROX. 95% OF THE ECRA CLEANUP HAS BEEN COMPLETED. ESSEX HAS PROPOSED TO PUMP CONTAMINATED GROUNDWATER FROM THE FORMER UST FARM/PHthalATE SPILL AREA AND DISCHARGE IT TO THE MIDDLESEX COUNTY UTILITY AUTHORITY AFTER PRETREATMENT (IF NEEDED). THE SYSTEM IS PROPOSED TO BE UP IN 1992. I ASKED MS. ROSENTHAL IF ESSEX HAD SAMPLED AN OFF-SITE WELL (ETHYL WELL #6) LOCATED WEST OF THE SITE ON SAYTECH CHEMICAL PROPERTY. THE WELL WAS PROPOSED TO BE SAMPLED UNDER ECRA BUT ESSEX HAS NOT BEEN ABLE TO GAIN ACCESS TO THE SITE. I ASKED ABOUT THE LABORATORY WASTES. MS ROSENTHAL STATED THAT LAB WASTES ARE STORED IN THE HAZ. WASTE DRUM STORAGE LOCATED SOUTH OF THE MANUFACTURING BLD.

DURING THE FACILITY INSPECTION READINGS OF 1000 PPM AND 1 PPM WERE OBTAINED ON AN ORGANIC VAPOR ANALYZER (OVA) AND A HNU RESPECTIVELY FROM HOLES DRIVEN INTO THE SOIL BESIDE BURTS CREEK. AN OIL LIKE SHEEN AND ORANGE PRECIPITATE WAS NOTED IN THE CREEK. DURING THE INSPECTION WELLS OW-111D AND OW-111S APPEARED TO HAVE BEEN SEALED. IN ADDITION AN UNMARKED WELL OR VENT PIPE WAS LOCATED APPROX. 40 FEET SOUTHWEST OF OW-3D AND OW-3S. THE VENT PIPE ? WAS A 4 INCH DIAMETER PVC PIPE WITH A PVC SCREW TOP WHICH PROTRUDED FROM THE GROUND TO A HEIGHT OF 6 INCHES. WHEN THE TOP WAS REMOVED READINGS OF 400 PPM AND 3.5 PPM WERE DETECTED ON AN OVA AND A HNU, RESPECTIVELY FROM THE PIPE. MS. ROSENTHAL DID NOT KNOW WHAT THE PIPE WAS USED FOR AND STATED THAT IT MAY BE A STATE (NJDEP) INSTALLED WELL.

THE UST AREA CONSISTED OF AN EXCAVATED AREA WHICH HAD A DEPTH OF 4 FEET. THE AREA WAS FENCED AND STANDING WATER WAS OBSERVED IN THE EXCAVATION.

THE HAZ. WASTE DRUM STORAGE AREA APPEARED TO BE IN GOOD CONDITION. THE AREA WAS FENCED AND CONSTRUCTED OF CONCRETE WITH CONCRETE CURBING. THE STORAGE AREA WAS SLOPED TO A SUMP. NO READINGS WERE OBTAINED ON EITHER THE OVA OR THE HNU. APPROX. 30-50 DRUMS WERE STORED.

READINGS OF 30 PPM WERE DETECTED ON AN OVA FROM HOLES DRIVEN AROUND THE SIDES OF THE ABOVEGROUND TANK FARM. THE TANK FARM CONSISTS OF TEN TANKS OF APPROX. 10,000 GALLONS EACH LOCATED ON A CONCRETE BASE WITH 6 INCH CURBING. ANOTHER SET OF ABOVEGROUND TANKS ARE LOCATED ALONG THE SOUTHEASTERN PORTION OF THE MANUFACTURING BLD. THE TANKS WERE LOCATED ON A CONCRETE BASE AND INCLUDED TWO 9,000 GALLON TANKS MARKED POLYPROPYLENE GLYCOL AND GLYCOL POLYETHER, ONE 6,000 GALLON TANK CONTENTS UNKNOWN AND A LIQUID NITROGEN TANK.

APPROX. 30 DRUMS WERE OBSERVED IN THE EMPTY DRUM STORAGE AREA LOCATED ALONG THE EASTERN FENCE LINE. AN EMPTY 20,000-GALLON AGST WAS LOCATED NEAR THE NORTHEAST SIDE OF THE BLD. OIL STAINING WAS OBSERVED ON THE PAVEMENT IN THIS AREA. ALSO LOCATED IN THE NORTHEASTERN PORTION OF THE SITE WAS APPROX. 60

ATTACHMENT 11-1

Ref. No. 4 p. 205

CUBIC YARDS OF SOIL EXCAVATED FROM THE UST AREA. THE STAGED SOIL WAS ONLY PARTLY COVERED WITH PLASTIC AND THE HAY BAILS SURROUNDING THE PILE FAILED TO COTAIN RUNOFF FROM THE AREA.

IN THE NORTHERN PORTION OF THE SITE TWO EMPTY SUN OIL TANKS WERE OBSERVED, INADDITION A TEMPORARY ABOVEGROUND OIL/WATER SEPERATOR WAS LOCATED JUST SOUTH OF THE UST AREA EXCAVATION. THE TANK HAD A CPACITY OF 23,000 LITERS AND WAS INSTALLED IN JULY 1991 WHEN IT REPLACED THE UST OLIL/WATER SEPERATOR FORMERLY LOCATED IN THE UST EXCAVATION AREA. THE EFFLUENT FROM THE TANK WAS BEING DISCHARGED TO THE EXCAVATION AND APPEARED CLEAR.

WE THEN PROCEEDED BACK TO THE OFFICE AND I AGAIN STATED THE REASON FOR THE INSPECTION. I AGAIN ASKED ABOUT THE PVC PIPE SOUTHWEST OF OW-3. MS. ROSENTHAL STATED SHE DID NOT KNOW. A LONG TIME ESSEX EMPLOYEE (ARTY DURANT) WAS BROUGHT IN AND I ASKED IF HE HAD ANY KNOWLEDGE OF THE PIPE HE STATED HE DID NOT KNOW ("THAT AINT NOTHING"). JOE STEFANONI AND ANDREW CYR DEPART THE SITE.

ATTACHMENT H-2

Ref No 4 p. 206

ATTACHMENT I

NJDEP INSPECTION FORM

12-19-24

Report Prepared for:

Generator ☒

Transporter ☐

HWM (TSD) facility ☐

Facility Information

Name: Essex Speciality Products, Inc

Address: 1 Crossman Bld. South
Sayreville, N.J. - 08872

Lot: 2 Block: 251
336A

County: Middlesex

Phone: 201-727-2100

EPA ID#: NJD0002568715

Date of Inspection: 12-9-83

Participating Personnel

State or EPA personnel: L. Zainelli

Facility personnel: Mike Barr
Plant Manager

Report Prepared by Name: L. Zainelli

Region: II

Telephone #: 609-292-5560

Reviewed by: Fred Sillers JS

Date of Review: 12/22/83

ATTACHMENT I-1

Ref No. 4 p. 208

FACILITY NAME: Essex Specialty Products, Inc.

ADDRESS: 1 Crossman Rd. South
Sayreville NJ

COUNTY: Middlesex

EPA ID #: NJ DCC2568715

TIME IN: 0930 hours

TIME OUT: 1215 hours

DATE OF INSPECTION: 12-9-83

PHOTOS TAKEN



YES



NO

If yes, how many? 2

SAMPLES TAKEN



YES



NO

NUMBER OF SAMPLES _____

NJDEP ID # _____

MANIFESTS REVIEWED



YES



NO

Number of manifests in compliance 38

Number of manifests not in compliance -

List manifest document numbers of those manifests not in compliance.

ATTACHMENT I-2

Ref. No. 4 p. 209

Summary of Findings

Facility Description and Operations

Essex Speciality Products, Inc. (Essex Chemicals) has been in operation at this site for approximately nineteen years. Facility is involved in the manufacturing of industrial sealants and adhesives, industrial coatings, and vulcanizable elastomers.

Process consists of mixing various resins and powdered fillers with either liquid solvents or plasticizers. Operation is of the batch type and approximately 250 raw materials, as well as suppliers are involved. A major customer is General Motors, and the facility produces a ^{Max} windshield sealant for them, as well as other automotive customers, which is the major item produced.

Finished products are sent off-site in pails, cans, drums and tank wagons.

Describe the activities that result in the generation of hazardous waste.

① Waste flammable liquid - D001 - primers and sludges, and other flammable products generated from coating + adhesive operations, as well as tank wash residue which are unsuitable for reclamation (Custom distillation at SRS). Sent to Chemical Waste Management, Alabama if unsuitable for reclamation.

Identify the hazardous waste located on site, and estimate the approximate quantities of each. (Identify Waste Codes)

- Mixed Flammable Solvents - F005 - 28 drums

ATTACHMENT I-4

Ref. No. 4 p. 211

GENERATOR INSPECTION CHECKLIST

YES NO N/A

7:26-8.5

Hazardous waste determination

(a) Did the generator test its waste to determine whether it is hazardous?

✓
✓

Is the waste hazardous?

✓

Is the generator determining that its waste exhibits a hazardous waste characteristic(s) based on its knowledge of the material(s) or processes used?

✓

Has hazardous waste been shipped off site since November 19, 1980?

—

If yes, how many shipments, off site, have been made and describe the approximate size of an average shipment made on a monthly basis. If facility is a small quantity generator, please explain.

38 loads off site

mixed solvents - 1500 gallons/month
solids - 15 drums/month

*Total of approximately 30 drums/month

includes hazardous + non-hazardous material

7:26-7.4(a)1

Does the generator have an EPA ID #?

✓

7:26-7.4(a)4

Does each manifest have the following information? Please circle the elements missing and obtain a copy of the incomplete manifests. (List those manifests that are deficient)

✓

7:26-7.4(a)4i

The generator's name, address and phone number?

✓

7:26-7.4(a)4ii

The generator's EPA ID number?

✓

7:26-7.4(a)4iii

The transporter(s) name, address and phone number?

✓

7:26-7.4(a)4iv

The transporter(s) EPA ID number?

✓

7:26-7.4(a)4v

The name, address and phone number of the designated TSD facility?

✓

7:26-7.4(a)4vi

The TSDF's EPA ID number?

✓

7:26-7.4(a)4vii

The name, type and quantity of hazardous waste being shipped, including such particulars as may be required regarding same?

✓

ATTACHMENT

15

REL No 4 0 212

ATTACHMENT J

INSPECTION REPORT *R-1*

REPORT PREPARED FOR:

- ☒ Generator
☐ Transporter
☐ HWM (TSD) Facility

FACILITY INFORMATION

Name: Essex Specialty Products
Address: 1 Crossman Road South
Somerville, NJ
Lot: 2 Block: 330 A
County: Mid. Essex
Phone: 201-777-2100
EPA ID #: NSD002568715
Date of Inspection: 02-04-87

PARTICIPATING PERSONNEL

State or EPA Personnel: TODD KING - NJDEP
LINDA JORDAN - NJDEP

Facility Personnel: Bob Hartman - Plant Manager
Ron Vercaen - Plant Supervisor
John Prentiss - Env. Coordinator

Report Prepared by Name: TODD KING
Region: CFD
Telephone #: 609-426-0700
Reviewed by: Linda E. Jordan
Date of Review: 2-24-87

ATTACHMENT 2-1

Ref No. 4 p. 214

FACILITY NAME: Essex Specialty Products
ADDRESS: 1 Crossman Rd. South
Sayreville, NJ
COUNTY: Middlesex
EPA ID : NTD007568715
DATE OF INSPECTION: 02-04-87

TIME IN: 0920
TIME OUT: 1100

PHOTOS TAKEN

☐ YES

☒ NO

If yes, how many? 0

SAMPLE TAKEN

☐ YES

☒ NO

NO. OF SAMPLES 0

NJDEP ID # 0

MANIFESTS REVIEWED

☒ YES

☐ NO

Number of manifests in compliance 25

Number of manifests not in compliance 0

1984 - 8
1985 - 7
1986 - 10
1987 - 0

List manifest document numbers of those manifests not in compliance.

ATTACHMENT J-2

Ref. No. 4 p. 215

SUMMARY OF FINDINGS

FACILITY DESCRIPTION AND OPERATIONS

Essex Specialty Products was originally registered as a TSD Facility due to the planned construction of a waste surface impoundment and a hazardous waste incinerator. However, it was decided not to construct the above and the facility requested to be delisted as a TSD in a letter dated 05-15-83 (see Attachment #1). The facility received correspondence to the delisting in an approval letter from DEP-Engineering dated 08-18-83. (See Attachment #2) LRS

Essex Specialty Products, Inc. has been in operation at this site for approximately nineteen years. Facility is involved in the manufacturing of industrial sealants, adhesives, coatings, and vulcanizable elastomers.

Process consists of mixing various resins and powdered fillers with either liquid solvents or plasticizers. Operation is of the batch type and approximately 250 raw materials as well as supplies are involved. One of their major products is fiberglass sheets with a layer of adhesive on the back. These are used by various automotive companies as a reinforcement for various body panels of today's new cars which are constructed of very thin sheet metal. The sheets are placed on the body panel and then heated which melts the fiberglass to the panel. This product is produced by a patented process called the Beta-Braze process.

Finished products are sent off site in boxes, cans, drums, and tank wagons.

ACTIVITIES THAT RESULT IN THE GENERATION OF HAZARDOUS WASTE

1. Waste flammable liquid-D001-primers, sludges and other flammable products generated from coating and adhesive operations, as well as tank wash residue which is unsuitable for reclamation. This material is sent to Fennisey Land Fill. (Approx. 55 gal./month generated.)
2. Mixed flammable solvents-F005-generated from equipment washing. (toluene, MEK, small amt. of xylene). Company has approximately 15 300 gal. or greater agitated mixing tanks and several smaller ones. Some are used for all products and are continuously being cleaned.

This waste is sent to Solvents Recovery Service in Linden for custom distillation. (Approx. 1000 gal./month generated.)

3. Waste Oil-(F205-generated from changing vacuum pumps and parts of compressors-it is mixed with solvents. (20-30

ATTACHMENT 5-3

Ref. No. 4 p. 266

gal./month generated.)

4. Corrosive material-corrosive-generated infrequently if a problem with lap or raw material.

5. Alkaline corrosive-generated by cleaning equipment with solvent wash.

HAZARDOUS WASTE LOCATED ON SITE

15-55 gal. drums of Alkaline Corrosive-0002

82-55 gal. drums non-hazardous solid waste.

80-55 gal. drums waste flammable liquid-7005

FINDINGS

Arrived on site and met with Bob Hoffman-Plant Manager, Roy Vergeau-Plant Supervisor, and John Prenatagast-Environmental Coordinator. I inquired as to whether they had the paperwork pertaining to the correspondence with DEP-Engineering dealing with their delisting from a TSD to a generator. They produced a letter dated 5-26-83 from DEP-Engineering stating their delisting.

I inquired as to the history of spills on site and the following findings were noted:

1. 04-29-86: 8 lb. spill of paper polymer-Mr. Prenatagast stated that this was due to an overheated drum in their Beta-brace operation. He stated that there was no discharge of liquid substance to the soil due to the fact that as soon as the drum was cooled with water, the polymer solidified.

2. 1979-approx. 1000 gal. release of plasticizer. Excavation of soil took place as well as the installation of 10 monitoring wells throughout the site. Mr. Prenatagast stated that they were receiving correspondence from the state DEP as to the approx. monthly sampling of the wells until approx. 1984. Now, he stated that the wells are monitored annually because no more correspondence has been received from the state since 1984. He also stated that a sheen was noted on a small stream (Burts Stream) until 1984, when it cleared.

3. 06-12-84: anonymous complaint that there was a release of an unknown substance into a small stream. Mr. Hoffman stated that this was not a spill, but absorbent pillows

ATTACHMENT

J-4
Ref. No. 4 p. 217

were being put into the stream to soak up plasticizer on the surface due to the 1979 spill. Also, much work was being done on site due to the removal of underground plasticizer tanks, which are now replaced by an above ground tank farm.

During the inspection of the site, it was noted that in the rear of the building, there were several drainage gratings on the ground. Mr. Hoffman stated that the water and occasional oil that enters these gratings runs to a water-oil separator. The separated water is then discharged into the sanitary sewer system and it is tested via a weekly composite sample.

During the inspection of the hazardous waste storage area, the following was found:

2-55 gal. drums waste flammable liquid dated 10-03-86.
4-55 gal. drums waste flammable liquid dated 10-29-86.

These 6 drums were in violation of the generator 90 day storage regulation.

Before leaving the site, the following NOV's were issued:

NJPD 7:26-9.4(d)5-no daily drum inspection.

NJPD 7:26-12.1(a)-failure to submit parts A and B of permit application for the operation of a hazardous waste facility.

They were given until 02-18-87 to come into compliance with the above regulations.

Before leaving the site I recommended to the three representatives that they start a daily documented drum inspection log. It was noted that the same violation was found during a 1983 RCRA inspection. I also recommended that they arrange to dispose of the drums stored over 90 days and not let the other drums accumulate for over 90 days in the future.

I also recommended that they contact their local fire department again since they said that they did but the department did not come out because they are a volunteer fire department. I recommended that they obtain a letter from the fire department stating that they are volunteer and can not participate in the semi-annual fire drills, and send this letter to Linda Jordan-DHWM Supervisor for an exemption from the regulation.

ATTACHMENT J-5

Ref No. 4 p. 218

ATTACHMENT K



ESSEX SPECIALTY PRODUCTS, INC.

A WHOLLY-OWNED SUBSIDIARY OF
ESSEX CHEMICAL CORPORATION

1401 BROAD STREET • CLIFTON, N.J. 07015

PHONE (201) 773-6300

May 26, 1983

Mr. Frank Coolick
Bureau of Hazardous Waste Engineering
32 E. Hanover Street
Trenton, New Jersey 08625

Dear Mr. Coolick:

The Essex Specialty Products plant located at 1 Crossman Road South, Sayreville, N.J., EPA ID Number NJD002568715 has requested that it be considered a generator of hazardous waste, rather than a TSDF. Pursuant to this request, I have spoken with Bill Sharples of your department, and am providing the following additional information about the plant.

At the time of our application for TSDF status, the plant had anticipated a need to store hazardous wastes, and had planned to construct a surface impoundment and incinerator. Since that time, we have found that we are able to arrange for the disposal of all our wastes within the 90 days from generation permitted to generators of hazardous waste. We use containers exclusively for the short-term storage of these wastes. We do not use and have never used tanks (S02) for the management of our wastes. The proposed surface impoundment (T02) and incinerator (T03) have never been constructed and are no longer under consideration.

As I have stated above, the only hazardous waste activities in which the Sayreville plant is involved are the generation and short-term (less than 90 day) storage of hazardous waste.

please let me know if you have any further questions regarding this matter.

Very truly yours,

Diane L. Driscoll

Diane L. Driscoll
Regulatory Compliance Administrator

DLD/lsl

ATTACHMENT K

Ref No. 4 p. 220

SITE INSPECTION

ESSEX CHEMICAL CORPORATION

(aka: ESSEX SPECIALTY PRODUCTS)

SAYREVILLE BOROUGH, MIDDLESEX COUNTY

EPA ID No.: NJD002568715

Volume II of II



New Jersey Department of Environmental Protection and Energy
Division of Responsible Party Site Remediation
Bureau of Site Assessment

Ref. No. 4 p. 221

ATTACHMENT L

Spill File General

Edward J. Faille

Oil Spill, Essex Chemical
77-8-25-3

January 19, 1978

On August 25, 1977, Joan Birns called and asked me to check an oil spill at Essex Chemical, 882 Main Street, Sayreville, NJ. I told her I would check it.

At 1630 I arrived at the Essex Chemical plant. I met with the following people.

Dan Blankenship	Director Manager
Ed Egan	Plant Manager
Fred Rohm	Plant Engineer

I told them that I received a complaint of an oil spill. When we inspected the stream in front of their building I found a slight sheen in it. The bank on both sides had a black stain on them. When I put some of the soil in the water it caused a sheen. Mr. Rohm told me that they had a 400 gallon amorphous polypropylene spill around March 15, 1977. I asked Mr. Rohm if he notified the State and he said he didn't. He told me that the EPA had been notified and he didn't know that the State was supposed to be notified. Mr. Egan and Mr. Blankenship have only been with this company for a month. So neither one of them knew anything about the problem. Mr. Egan asked what should be done to correct this problem. I told him that they should remove the contaminated soil and debris from the stream and install filter fence immediately to stop any oil from getting into a swamp area. He said he would call Earthline Company to clean the stream.

On August 26, 1977, Mr. Blankenship called and told me Earthline is working in the stream. I asked him to call me when they have completed it and I would do a final inspection.

On September 12, 1977, Mr. Blankenship called me and told me that Earthline had completed the cleanup. I told him I would be there on Thursday September 15, 1977.

Thursday September 15, 1977

I met with Mr. Blankenship, Mr. Rohm, Doug Paul and Jim Margolin from Earthline Company. When we walked the stream I was pleased with what I found. All of the contaminated soil and debris had been removed. There were three filter fences installed in the stream. I told them that as far as I was concerned they did an excellent job. Therefore I am not recommending any further action be taken by the State.

All:G6

ATTACHMENT L

Ref. No. 4 p. 223

ATTACHMENT M

871
Mr. F. Post, Supervisor, Basin Field Operations and Enforcement
Mr. F. Stevenson, Senior Environmental Engineer

Serious Water Pollution Violations
Essex Chemical Company, RFC Division
Sayreville Borough

On Tuesday, August 8, 1978 the writer investigated the status of chemical spillage cleanup operations at subject facility. It was noted that said operation has been halted without prior notice to this Element. Further, a gravel underdrain system has been installed which allows ground waters and storm water from the contaminated area to discharge to Burts Creek. Neither this Element or EPA has been advised of this discharge by the Company.

Background

On June 28, 1978 Essex Chemical Company reported a loss of 100 gallons of Dioctyl Phthalate from an underground 3,000 gallon storage tank. The Office of Hazardous Substance Control has coordinated the spill cleanup response. (See attached June 30, 1978 Memo from Scott McCone)

Inspections

On Thursday, June 30, 1978, the writer and Mr. Banford inspected said cleanup operations. It was apparent that a large quantity of material had saturated a large area (approximately 100 X 100) over a long period of time. This area was identified by a black discoloration of soils and vegetation in front of an earthen mound covering numerous storage tanks (See attached sketch). The Tank Storage is identified as containing: di-2-ethyl hexyl phthalate, di iso Deca Phthalate, Toluene, Xylene, Hexane, MEK, Shellflex plastizer, "Mixed Distilled Solvents", Mineral Spirits and Fuel Oil.

The writer and Mr. Banford met with:

Fred Rohm, Plant Engineer
Robert Devine, Plant Manager
Richard Majos, Regulator Compliance Administrator

We requested that the Company immediately begin pressure testing all of the storage tanks and report to this Element on their condition. We also advised the Company representative to install ground water monitoring wells around the tank storage area.

ATTACHMENT 11-1
Ref No. 4 P. 225

Photographs (attached) were taken to document the cleanup activities and the condition of ground water and also the facilities NPDES permitted discharge. Samples were obtained of ground water and surface water below the discharge point (See attached results of analyses). It was obvious that the contamination reached State surface waters prior to and during the cleanup operations.

On Thursday, July 6, 1978 the writer again inspected this operation. The writer observed that the cleanup contractor, Olsen and Hassold Inc., was discharging the contents of a vacuum truck through a filter fence into Furts Creek. The writer met with a Mr. Doug Paul, V.P. of Olsen and Hassolds Spill Division, who stated that Mr. McCone of OHSC had ok'd the procedure of decanting the settled vac truck contents. I advised Mr. Paul that this was a Federal violation. Mr. Paul immediately ceased discharging in this manner; the truck was then decanted to Essex's pretreatment system.

Mr. Paul stated that the contaminated soils removed from the area would be disposed of at GROWS Landfill in PA. and that the settled phthalates would be disposed of by incineration. The writer advised Mr. Devine of Essex that no further decanting should take place without supporting analysis documenting no pollutants in the discharge and notification to EPA.

On Tuesday, July 18, the writer again inspected the cleanup operations. Contaminated ground waters were still being removed from the interceptor trench downstream from the tank storage mound. The writer met with Mr. Devine who stated that Essex intended to install a permanent interceptor trench and oil skimmer arrangement for ground water and yard area spillage presently discharging through DSN 001. I advised him of the State's Treatment Works Approval requirements and supplied him with the appropriate applications and T.W.A. information. He stated that Essex was proceeding with pressure testing of the storage tanks but there were no plans to install monitoring wells because a clay layer exists 1 to 2 feet below the surface. I suggested that he submit documentation of same.

Conclusions

- 1.) To date no correspondence or documentation has been received from Essex.
- 2.) Files indicate prior chemical spillage problems and NPDES non-compliance at the facility (See attached).
- 3.) A July 7, 1978 joint inspection with Mr. Nicholas Casselano of EPA disclosed numerous violations of the Company's NPDES Permit.

ATTACHMENT

M-2
Ref No 4 p. 226

- 4.) Improper housekeeping and a lack of spill containment provisions at the facility have resulted in contamination of ground waters and direct discharge of spillages to surface waters. The facilities SPCC Plan is quite apparently inadequate.

Recommendations:

- 1.) This Basin must coordinate enforcement with EPA regarding an Order to Show Cause currently being prepared.
- 2.) Formal Notice should be given Essex regarding the State's TWA regulations.
- 3.) Abatement requirements should be outlined as part of EPA's Show Cause Hearing.

El19:T:473347-49

cc: J. Strong, Esq., EPA Water Enforcement Branch
Mr. N. Casselano, EPA Industrial Water Facilities Branch
Mr. C. Landin, EPA Status of Compliance Branch
Mr. J. Vernam
Mr. S. McGone

ATTACHMENT M-3

Ref No. 4 D. 227

ATTACHMENT N



ESSEX CHEMICAL CORPORATION
SPECIALTY CHEMICALS DIVISION

1 CROSSMAN ROAD, SOUTH, SAYREVILLE, N.J. 08872
PHONE 201-727-2100

September 6, 1978

Gerald M. Hansler, P.E.
Regional Administrator, Region II
U.S. Environmental Protection Agency
26 Federal Plaza
New York, New York 10007

Attn: Status of Compliance Branch

Dear Mr. Hansler:

We have made great efforts to eliminate spills, however, an incident occurred at night on August 30, 1978 in which about 200 gallons of Di Octyl Pthalate oil was spilled onto the ground. This was the result of a storage tank being overfilled during a transfer operation.

To contain the spill, an oil adsorbant powder was made into a dam and the yard drain was sealed with a plastic sheet. The next morning a pump was used to remove puddles of oil and an adsorbant (vermiculite) was spread to soak up the remaining oily material.

Unfortunately, a rather heavy rain occurred on September 1, 1978 before all the vermiculite could be swept up resulting in some carry over of oil and vermiculite into the storm water drain and, thence, into the drain ditch in front of our plant.

The presence of oil and vermiculite was noted by Mr. Charles Maack of the N.J.D.E.P. who immediately requested information from Essex Chemical. Mr. Maack was taken through the Essex plant and the incident was discussed in detail.

The cleanup was continued with oil adsorbant pads and oil adsorbant powder being applied and removed. In addition, the three oil intercepting "fences" in the drainage ditch were serviced by replacing adsorbant with fresh material. All soiled material was removed by authorized contractors

Our future plans call for impermeable pads and dikes around the storage tanks. The drainage from these areas will be piped to a large oil separator or "skimmer" which is presently being engineered. Thus, all potential leakage from tankage or transfer areas will be controlled and no further pollution should occur.

ATTACHMENT N-1

Ref. No. 4 0.229

We will continue to cooperate with all authorities in the matter of spill prevention and we will expedite plans to give complete containment of all pollutants but in the meantime we will use the greatest possible care to eliminate any carryover of pollutants.

Very truly yours,

W.T. Klapper
Process Engineer

WTK:pam

Original to: Assistant Director for
Operations & Enforcement
Division of Water Resources
New Jersey Department of
Environmental Protection
P.O. Box 2809
Trenton, New Jersey 08625

ATTACHMENT N-2

Ref. No. 4 p. 230

ATTACHMENT O

M E M O R A N D U M

TO: Mr. R. Majos
cc: Mr. W. Corydon
SUBJECT: D.O.P. Overflow of 8-29-78 - Sayreville
FROM: Bob Devine *BSN*

DATE: 9-07-78

On Second Shift, August 29, 1978, Bill Bowler, Plastisol Operator, pumped D.O.P. from an underground storage tank to the Nauta Mixer. He neglected to check all of the valves in the D.O.P. line so that at the same time D.O.P. was being metered into the Nauta Mixer it was flowing into the above the ground storage tank. The above the ground storage tank was nearly filled. It became overfilled and overflowed onto the ground. The operator did not inform the supervisor, Don Corlew, of this spill.

Don Corlew observed the material on the ground as he was preparing to secure the plant that night. He informed Bob Hoffman of this problem. Bob Hoffman and Bill Klapper visited the plant that night, covered the the yard drain with a sheet of plastic, and poured Speedy-Dri around that area to keep the oil spill from getting into the stream. The next morning Bob Devine attempted to get a large quantity of perlite to absorb the D.O.P. He was not able to get perlite but did get a large supply of vermiculite. The vermiculite was spread around the yard to absorb the oil. Some rainstorms hampered the cleanup of the yard and the spill was not cleaned until Friday morning, September 1. Some additional rain fell on Friday washing some small amount of D.O.P. and scattered pieces of vermiculite into the stream after the cover had been removed from the drain.

On Friday afternoon, a Mr. Charles L. Maack of the Division of Water Resources, New Jersey State Department of Environmental Protection, was visiting Say-Tech next door. While there he noticed a sheen of oil on the surface of the stream passing through Say-Tech's property. He came up to our property to sample from Discharge of .001. He came to the office and asked for Bill Klapper and Bob Devine. He asked to see copies of our Discharge Permit for .001. He informed us that we were in violation of our permit since we had a visible oil sheen and also discharging solid particles (that is, vermiculite pellets). informed us that we should inform the state in writing that we were in violation and when we expect to be out of violation. He asked to see the source of the yard drain that fed .001; went out into the tank farm area and saw no great accumulations of oil or vermiculite. He.. seemed to be very concerned about the base of several upright tanks that were mounted in sand and gravel. He expressed a concern that any leakage or spillage from those tanks could go directly to the ground and into the ground water. He was also very curious as to whether the company had secured services of a geologist to measure the quality of ground water in the area of the tank farms as had been suggested by his associate Edward Stevenson.

BD:pam

ATTACHMENT 0
Ref. No. 4 p.232

ATTACHMENT P

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-6669
TAT-02-F-00183

MEMORANDUM

TO: Paul Elliot, Chief
Emergency Response and Hazardous Materials Inspection Branch, U.S. EPA

FROM: Rodolfo Hafner, TAT II *RU*

SUBJECT: SPCC Inspection
Essex Chemical Corporation
1 Crossman Road South
Sayreville, N.J.

DATE: January 28, 1983

In accordance with TDD #2-8301-03, an SPCC inspection for Essex Chemical Corporation was conducted. The facility has a total above ground storage of 194,300 gallons, most of which are chemicals and non-oils. This storage includes approximately 550 gallons of oil used to heat the chemicals contained in two tanks. In addition, there are 15 drums of lube oil making the total oil capacity 1375 gallons. There is no below ground storage.

The following areas of concern resulted from the desk review and the field inspection:

- 1) 40 CFR 112.7(b) - The SPCC plan does not mention the oils in the tanks heating system. The plant should include the prediction of the direction, rate of flow and total quantity of oil that could be discharged as a result of each major incident.
- 2) 40 CFR 112.7(c) - The lube oil stored in drums has no secondary containment. Should a spill occur, the oil would flow into the drainage and eventually into the Creek.
- 3) 40 CFR 112.7(e)(1)(i) - The oil heated tanks are diked. Drain pipes from the dikes do not have valves to prevent oil spills from entering the drainage system. Additional valves should be added to the pipes to prevent any potential spill into the Burt Creek.

Essex Chemical plans to install a 6,000 gallon, gravity oil separator to receive all drainage from the plant. According to Diane Driscoll, of Essex Chemical, this should be done by the end of this summer. If the oil separator is installed, the questions raised about the oil drainage problem should be solved. The drawing included in the SPCC Plan of the storm water runoff system should include the drainage for the whole yard including the new tank farm.

Consideration should be given to reinspecting the facility in late summer.

A. SPCC INSPECTION FIELD SHEET (To be completed if SPCC Regulation is applicable to Facility - see 40CFR Part 112.1.)		SEE INSTRUCTIONS ON REVERSE
1A. NAME OF FACILITY <i>Essex Chemical Corporation, Specialty Chemicals Division</i>		1D. TYPE OF FACILITY <i>MANUFACTURER</i>
1C. FACILITY LOCATION <i>Sayreville Boro, Middlesex County, New Jersey</i>		
2A. NAME OF OWNER AND/OR OPERATOR RESPONSIBLE FOR FACILITY <i>Mike Barr</i>		2D. TELEPHONE NUMBER Area Code <i>(201) 727-2100</i>
2C. MAILING ADDRESS <i>1 Crossman Rd. South, Lot 2, Block 251, Sayreville, N.J. 08872</i>		
3. TYPES OF OIL STORED AND CAPACITY OF ABOVEGROUND AND BURIED STORAGE. <i>550 gals. oil circulating in heating system*</i> <i>15-55 gals. lube oils inside building (825 gals.)</i> <i>Total capacity: 550 + 825 = 1375 gals.</i> <i>The facility has storage capacity of 194,300 gals, discounting 1375 gals of oil the rest are</i> <i>* Used to heat the chemicals contained in Tanks hydrocarbon materials</i>		
4. IS A CERTIFIED SPCC PLAN AVAILABLE FOR INSPECTION? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		5. DATE OF INSPECTION <i>1/24/83</i>
6. NAME AND REGISTRATION NUMBER OF CERTIFYING ENGINEER <input type="checkbox"/> NOT AVAILABLE <i>John Cirello, N.J.P.E. 21439</i>		7. DATE SPCC PLAN WAS CERTIFIED <input type="checkbox"/> NOT AVAILABLE <i>8/27/82</i>
8. IS SPCC PLAN FULLY IMPLEMENTED? (Are the items called for in the Plan in the interest of spill prevention actually installed - if observable?). <input type="checkbox"/> NOT APPLICABLE <i>No, see 10. below</i>		
9. NAME OF WATER BODY THAT POTENTIAL SPILL COULD ENTER OR IF UNNAMED TRIBUTARY, THEN FIRST NAMED WATERBODY DOWNSTREAM (if known) <i>Burt creek tributary of the Raritan River</i>		
10. COMMENTS (Include comments by owner/operator - write on back or attach extra sheets if needed) <i>According to Diane L. Driscoll, the SPCC plant will be implemented by Aug. Sep.</i> <i>Had phone numbers for NRC and USEPA 1983</i> <i>NJ DEP # was not correct, correct # was given</i> <i>See EPA form 5700-54 for more comments</i>		
11A. SPCC NO.	11B. CASE NO. <i>2-83</i>	11C. NPDES NO. <input type="checkbox"/> NOT AVAILABLE <i>NJ 000 3093</i>
12A. INSPECTOR (NAME) <i>Rodolfo Hafner</i>		12B. DATE <i>1/28/83</i>
12C. INSPECTOR (PRINT) <i>RODOLFO HAFNER, TAT</i>		

B. SPCC INSPECTION SUMMARY SHEET

SPCC NO.	CASE NO. 2-83	DATE OF INSPECTION 1/21/83
NAME OF INSPECTOR (Signature) <i>Rodolfo Hafner</i>		DATE OF DOCUMENTATION REPORT 1/27/83
NAME OF INSPECTOR (PRINT) RODOLFO HAFNER TAT		NPDES NO. NJ 0003093

1. FACILITY

B. COMPANY ESSEX CHEMICAL CORP. SPECIALTY CHEMICALS DIVISION		
ADDRESS 1 CROSHAN RD. SOUTH, LOT 2, BLOCK 251		TELEPHONE (201) 727-2100
CITY SAYREVILLE	STATE NEW JERSEY	ZIP CODE 08872
FACILITY NAME		

D. FACILITY LOCATION

SAYREVILLE 3010,		
PARENT CORPORATION ESSEX CHEMICAL CORPORATION		
ADDRESS 1401 BROAD STREET		
CITY CLIFTON	STATE NEW JERSEY	ZIP CODE 07015

C. WATER BODY PROTECTED

RARITAN RIVER

2. PURPOSE

INITIATION: <input type="checkbox"/> Routine Surveillance <input type="checkbox"/> Coast Guard Information	
<input checked="" type="checkbox"/> Spill Report <input type="checkbox"/> Citizen Information <input type="checkbox"/> Other (specify):	
TYPE: <input checked="" type="checkbox"/> Plan Preparation	<input checked="" type="checkbox"/> Plan Implementation
<input type="checkbox"/> Follow-up	<input type="checkbox"/> Plan Amendment

3. INSPECTION

INDIVIDUAL CONTACTED Diane L. Deiscell	TITLE Safety/Compliance Administrator
INDIVIDUAL CONTACTED	TITLE
NOTIFICATION	

4. FINDINGS

SOURCE IN APPARENT COMPLIANCE WITH SPCC REQUIREMENTS:	5. ATTACHMENTS (None required if facility in apparent compliance)																																				
<input type="checkbox"/> Yes <input type="checkbox"/> I have adequate plan <input type="checkbox"/> Not subject to regulations <input type="checkbox"/> Insufficient storage <input type="checkbox"/> No reasonable spill expectation <input type="checkbox"/> Plan fully implemented <input type="checkbox"/> New facility operational less than 6 months <input checked="" type="checkbox"/> No <input type="checkbox"/> No plan <input type="checkbox"/> Plan not properly certified <input type="checkbox"/> Plan does not have management approval <input type="checkbox"/> Plan not maintained at facility manned 8 hrs/day <input type="checkbox"/> Inadequate plan (detailed SPCC Plan review attached) <input checked="" type="checkbox"/> Plan not fully implemented <input type="checkbox"/> Plan not reviewed within 3 years <input checked="" type="checkbox"/> Other Inadequate Plan, does not describe their oil storage.	<table border="1"> <thead> <tr> <th></th> <th>NONE</th> <th>ATTACHED</th> <th>ALREADY ON FILE</th> </tr> </thead> <tbody> <tr> <td>*Detailed Observations</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>*Photographs</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Slides</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Map</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>*Field Drawing</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>*Comments</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Telephone Conversations</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>*SPCC Plan</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table> <p>*ALL REQUIRED IF FACILITY IS NOT IN APPARENT COMPLIANCE. If photos not permitted, check "None" and explain. Add "SPCC Plan" to List of Attachments when appropriate.)</p> <p>Company did not permit us to take photographs, it is its policy. <i>P-3</i></p> <p><u>ATTACHMENT</u></p>		NONE	ATTACHED	ALREADY ON FILE	*Detailed Observations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	*Photographs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Slides	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Map	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	*Field Drawing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	*Comments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Telephone Conversations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	*SPCC Plan	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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*SPCC Plan	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																																		

FACILITY

ESSEX CHEMICAL CORPORATION

DATE OF INSPECTION

1/24/83

I. FACILITY DESCRIPTION

1A. TYPE OF BUSINESS/OPERATION

MANUFACTURE OF ADHESIVES, SEALANTS AND COATINGS

1B. FACILITY OIL STORAGE

550 gals. oil circulating in heating system*

15 - 55 gals. lube oils inside building (825 gals.)

Total capacity: $550 + 825 = 1375$ gals. (Oil)

The facility has an storage capacity of 194,300 gals. of which 1375 gals. is oil the rest is hazardous materials.

* Used to heat the chemicals contained in Tanks

1C. PREVENTION MEASURES PROVIDED

Entire plant is fenced

Tanks have dikes

Absorbent material provided

1D. APPEARANCE OF FACILITY (housekeeping)

Overall housekeeping was poor, however, there was construction going on. It is difficult to assess the impact of the construction on the housekeeping.

The facility appears to be messy and poorly maintained.

1E. PAST SPILL HISTORY

The SPCC plan does not indicate any spills in the last four years. Checking the SPCC files shows no spill occurring

ATTACHMENT

P-4

2. RECEIVING WATER (should a spill occur)

2A. NAME AND/OR DESCRIPTION

Spills from the Facility will drain, if unchecked, into the Burt Creek. The facility is located 0.8 miles Southwest of the Raritan River

- ☒ Perennial ☐ Intermittent
☒ Water present at time of inspection
☒ Inspector traced discharge to receiving water
☒ Inspector traced apparent drainage path to receiving water
☒ Receiving water identified by company representative
☒ Receiving water identified from topo maps
☐ Receiving water identified by other means (specify):

2B. PROBABLE FLOW PATH TO RECEIVING WATER

existing ^{drainage} pipe to the Burt Creek

Also facility has a drainage system in the production buildings which the company official says that the pipes have been capped

2C. CLIMATIC INFORMATION FROM OWNER/OPERATOR

no special considerations

ATTACHMENT P-5

Ref. NO. 4 P. 238

3. COMMENTS

- 1) Yard not fully asphalted as per SPCC plan. Asphalt broken
- 2) pools of oily material in yard
- 3) pool of chemical where in ground tanks were excavated
- 4) Oily sheen in creek
- 5) Absorbent material in creek stained with oil
- 6) Slope from plant to creek showed evidence of oil or chemical spill. The stain covered also the fence to about one foot above ground.
- 7) pipes from facility internal drainage system to creek should be removed to minimize a potential spill (apparently they are capped inside the building)
- 8) PVC pipe is being used for yard drainage. PVC may not be compatible with the materials that may flow through the pipe
- 9) Plan has NRC and USEPA phone numbers, USEPA phone number was incorrect, correct 24 hr. phone number was given by TAT
- 10) According to Ms. Diane L. Driscoll the SPCC plan will be fully implemented by August - September, 1983

ATTACHMENT

P-6

See attached memo from R. Harper to Paul Elliot for
a complete listing of areas of concern.

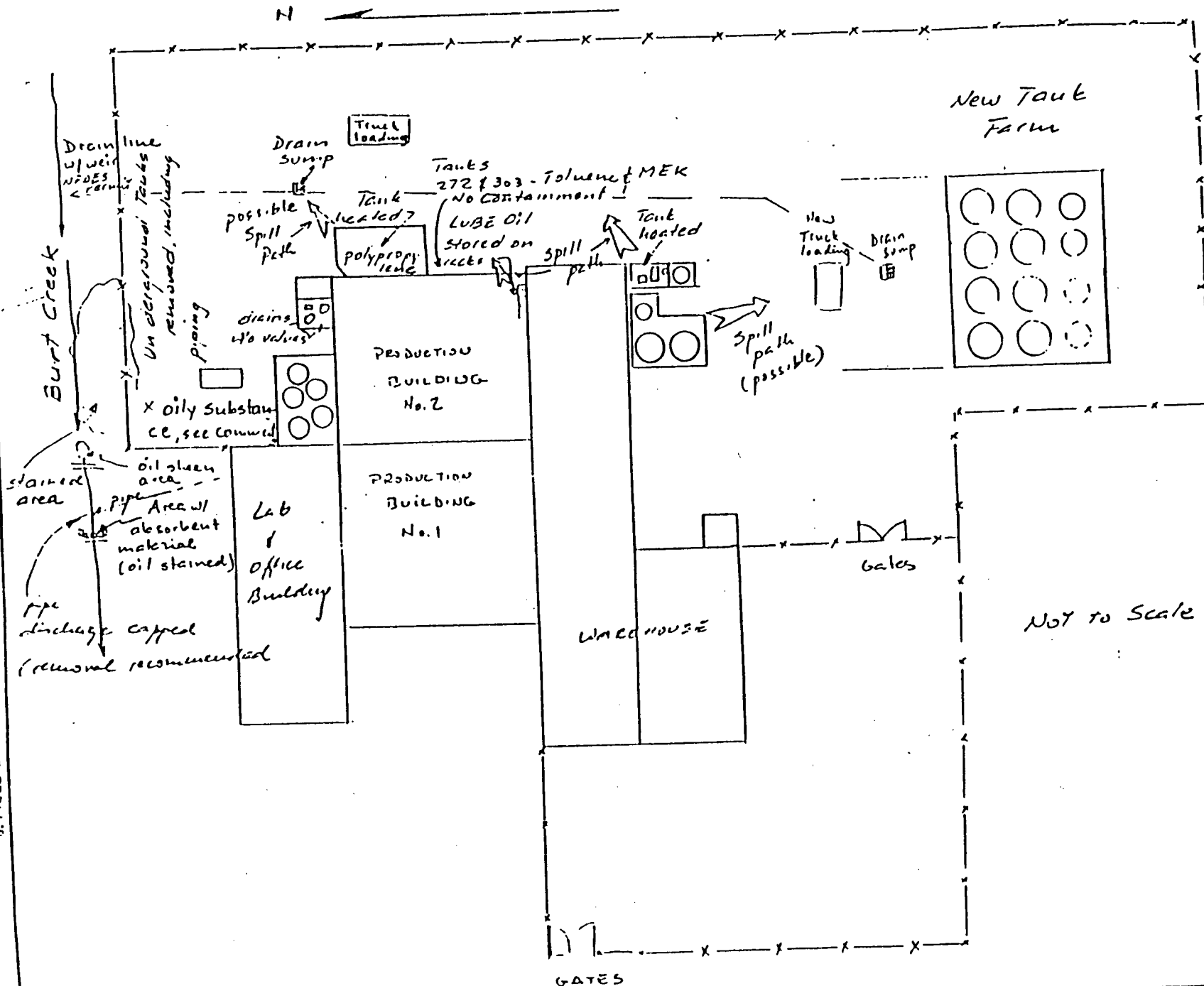
ATTACHMENT P-7

Not an amendment inspection

ATTACHMENT

P-8

5. FIELD DRAWINGS (Attach more sheets if needed, and show north arrow or other orientation)



INSPECTION DATE

11/24/53

FACILITY
Essex Chemical Corp Sayreville

INSPECTOR
ZOOOLFO HAEJER

ATTACHMENT P-9

7. PHOTOGRAPHS (Attach more sheets if nee <input type="checkbox"/>)	
SUBJECT	FACILITY
PHOTOGRAPHER	WITNESSES
WITNESSES	WITNESSES
DATE/TIME/DIRECTION	CAMERA/FILM/ATTACHMENTS
SUBJECT	FACILITY
PHOTOGRAPHER	WITNESSES
WITNESSES	WITNESSES
DATE/TIME/DIRECTION	CAMERA/FILM/ATTACHMENTS

ATTACH PHOTOGRAPHS HERE

No photographs allowed per company policy

Description of Operations

The Sayreville Borough facility supplies sealants, adhesives, and coatings to the following industries: transportation and metal fabricating. Distribution of products is nationwide under a variety of trade names.

The unit processes employed at the Sayreville Borough facility are essentially mixers which combine various raw materials to form batches of the desired products. These products include the following: structural adhesives, pigmented and non-pigmented primers, industrial adhesives, Betabrace^R epoxy, body sealer, sealants, and castable urethane. Some mixers require heat whereas others require cooling water to maintain the required temperature during reactions within the mixers.

Some drying operations include grinding or extruding of raw materials to specification before blending operations.

Reactors are intermittently cleaned with reclaimed methyl ethyl ketone (MEK) or toluene. These solvents are drummed and held on site in a designated paved, fenced, and locked hazardous waste drum storage area for less than 90 days, at which time they are manifested for disposal or reclaimed offsite at a permitted TSD facility.

Each unit process is vented via an exhaust system to the exterior of the building. Processes which emit particulates are vented to dust collectors on the exterior of the building.

ATTACHMENT

P-11

Ref. No. 4 p. 244

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
INDUSTRIAL SITE EVALUATION ELEMENT
CN 028, TRENTON, NJ 08625

ENVIRONMENTAL CLEANUP RESPONSIBILITY ACT (ECRA)

INITIAL NOTICE

GENERAL INFORMATION SUBMISSION (GIS)

This is the first part of a two-part application form. This information must be submitted within 5 days following any application situation as specified at N.J.A.C. 7:26B-1.5 or any triggering event as specified at N.J.A.C. 7:26B-1.6. Please refer to the instruction and N.J.A.C. 7:26B-3.2 before filling out this form. Answer all questions. Should you encounter any problems in completing this form, we recommend that you discuss the matter with a representative from the Element. Submitting incorrect or insufficient data may cause processing delays and possible postponement of your transaction. Please call (609) 633-7141 between the hours of 8:30 a.m. and 4:30 p.m. to request assistance.

PLEASE PRINT OR TYPE

Date May 18, 1990

1. A. Industrial Establishment

Name Essex Specialty Products, Inc. Telephone # (201) 727-2100

Address 1 Crossman Road South

City or Town Sayreville State 08872 Zip Code _____

Municipality Sayreville County Middlesex

B. Tax Block Number(s) 251 Tax Lot Number(s) 2

C. Standard Industrial Classification (SIC) Number 2891

D. Current Owner(s) (Property)

Name _____ Telephone # (201) 773-6300

Firm Essex Chemical Corporation

Street Address 1135 Broad Street

Municipality Clifton State NJ Zip Code 07015

E. Current Business Operator(s) of Industrial Establishment

Name _____ Telephone # (201) 727-2100

Firm Essex Specialty Products, Inc.

Street Address 1 Crossman Road South

Municipality Sayreville State NJ Zip Code 08872

F. Current Owner(s) (Business, if different from operator(s))

Name _____ Telephone # (201) 773-6300

Firm Essex Specialty Products, Inc.

Street Address 1135 Broad Street

Municipality Clifton State NJ Zip Code 07015

G. Have there been any previous ECRA submissions by this Industrial Establishment or another Industrial Establishment which occupied the same tax block and lot number?

☒ Yes ☐ No

If Yes, Name of Industrial Establishment Essex Specialty Products, Inc.

ECRA Case No. 88904 Date Submitted October 20, 1988

Current Status Sampling Plan being implemented.

2. Describe the transaction in terms of the action which initiates the ECRA review.
(See N.J.A.C. 7:26B-1.5 & 1.6)

Essex Chemical Corp. will transfer ownership of the property located at 1 Crossman Road South

Sayreville, on which the Essex Specialty Products ("ESP") facility is located, to ESP.

3. Is a cessation of operations involved at this location? ☐ Yes ☒ No

If Yes, give the date of public release of the decision to close the facility. Date / /

Is a copy of the public release enclosed? ☐ Yes ☐ No

If No, state the reason _____

4. If the transaction initiating an ECRA review is an agreement of sale or execution of an option to purchase, fill in the date of execution of that instrument plus provide One (1) copy of the document. Date _____

A. Is a sale involved? ☐ Yes ☒ No (If No, skip 4B, C and D.)

B. Date of Agreement/Letter of Intent/Notifications of Option to Purchase / /

C. Is a copy of the agreement of sale or option to purchase enclosed? ☐ Yes ☐ No

If No, state the reason _____

CERTIFICATIONS:

- A. The following certification shall be signed by the highest ranking individual at the site with overall responsibility for that site or activity. Where there is no individual at the site with overall responsibility for that site or activity, this certification shall be signed by the individual having responsibility for the overall operation of the site or activity.

I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of N.J.S.A. 13:1K-6 et seq., I am personally liable for the penalties set forth at N.J.S.A. 13:1K-13.

Typed/Printed Name Dave Courter Title Plant Manager

Signature _____ Date _____

Sworn and Subscribed Before Me

on this _____

Date of _____ 19 _____

Notary _____

- B. The following certification shall be signed as follows:

1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, Federal or other public agency, by either a principal executive officer or ranking elected official.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of N.J.S.A. 13:1K-6 et seq., I am personally liable for the penalties set forth at N.J.S.A. 13:1K-13.

Typed/Printed Name Paul T. O'Neill

Title Vice President of Operations and Management

Signature Paul T. O'Neill

Date May 10, 1990

Sworn and Subscribed Before Me

on this 10TH

Date of MAY 19 90

Linda J. Lauzon

Notary

LINDA J. LAUZON

NOTARY PUBLIC OF NEW JERSEY

MY COMMISSION EXPIRES AUGUST 1, 1991

ATTACHMENT P-15

ATTACHMENT Q

MEMO

TO Charles L. Maack, Assistant Chief, Region II

FROM ^{P.H.} Paul Harvey, Senior Environmental Specialist,
Region II

DATE FEB 15 1983

SUBJECT Tank Farm Removal - Essex Specialty Products, Sayreville

During the period from January 12th to 20th, 1983, the writer witnessed the removal of Essex's underground tank farm. These tanks have been in use for 18 years according to Mike Barr, Plant Manager and Diane Driscoll, Compliance Administrator. Following is a list of what each tank contained or could contain provided by Ms. Driscoll:

<u>Essex Tank#</u>	<u>Writer's Tank#</u>	<u>Material</u>
NONE	1	diesel fuel
115	2	MEK
114	3	mineral spirits
113	4	toluene
112	5	wash solvent. (70% toluene)
111	6	plasticizer oil (hydrocarbon)
110	7	toluene
109	8	plasticizer oil
108	9	wash solvent
107	10	wash solvent
106	11	xylene
105	12	wash solvent
104	13	plasticizer (phthlates)
103	14	plasticizer
102	15	plasticizer
101	16	plasticizer
100	17	toluene

This tank farm was above grade so it formed a small hill compared to the surrounding area.

17 Feb 1982

Ted - what happens
now? *[Signature]*

FEB 15 1983

ATTACHMENT *[Signature]*

Ref. NO. 4 p. 260

Tank No. 1 which contained diesel fuel was removed on January 13. The ponded ground water under this tank contained diesel oil floating on top. This situation was encountered from tank 1 through 3 and photographs were taken. The tanks appeared not to have defects although it was obvious that tank 1 had leaked.

On January 17, Isabel Szumski witnessed the removal of tanks 4, 5 and 6. She reported that the tanks appeared to be without defects and that diesel oil was encountered under each.

On January 18, the writer observed the removal of tanks 7 through 10. The removal of tanks 7-9 proceeded without incident. Some diesel oil was observed under each. During the removal of tank 10, the backhoe accidentally punched a hole in it and approximately 100-200 gallons of wash water flowed out into the pit before the tank was put on end. Apparently, the tank cleaning consultants forgot to pump out this caustic wash water. This water had a solvent odor (this tank had contained wash solvent) and was sampled by Essex. The spill could not be pumped out because the consultants were not available. Photos of each pit were taken.

On the next morning, January 19, the writer observed that most of the spilled wash water had seeped into the ground. The remaining wash water in the tank was being pumped out. In the afternoon, tanks 10-12 were removed. The soil under tank 10 had a solvent odor due to the spill. Under tank 11, a black oil that did not have a diesel odor was found. This oil was sampled by Essex and pumped out of the pit by the vac-truck. The same was encountered under tank 12 and gray stained sand along the left side of the pit was observed indicating a possible source of contamination (photos taken).

On January 20, the remaining tanks were removed (13-17). Under tank 13, the black oil was encountered and there was also a solvent or petroleum like odor. This ground water was sampled by Essex. The same situation was observed under the remaining tanks although the amount of oil was less under tank 17.

Tank 15 had a noticeable seam (photo), but there was no sign that the seam had leaked.

Between tank 16 and 17, the redish sand that covered the tanks was stained gray and this was probably the location of the phthalate spill Essex had in 1978. Photos of this area and all tank pits were taken.

The writer met with Diane Driscoll and Mike Barr after all tanks were removed. Essex agreed to analyze 3 samples (wash water spill, ground water under tank 11, and ground water under tank 13). The writer stated that the Division expected Essex and their consultants (Woodward-Clyde) to formulate a plan and program for the decontamination of the ground water and that this plan would need our approval. The Essex personnel agreed.

A43:G9

cc: Ted Hayes, Ground Water Management ✓
James Murman, Chief, Region II, Enforcement
Isabel Szumski, Region II, Enforcement

ATTACHMENT Q2

Ref. No. 4 p. 251



ESSEX SPECIALTY PRODUCTS, INC.

A SUBSIDIARY OF ESSEX CHEMICAL CORPORATION

1401 BROAD STREET • CLIFTON, NEW JERSEY 07015

PHONE (201) 773-6300

February 25, 1983

Mr. Paul Harvey
State of New Jersey
Dept. of Environmental Protection
Division of Water Resources
P.O. Box CN029
Trenton, NJ 08025

Dear Mr. Harvey:

Enclosed are the analytical results of the three samples we took and agreed to analyze during the removal of the underground tanks at our Sayreville plant. As we agreed, we will forward further information to you as it becomes available.

Please do not hesitate to call if you have any questions.

Very truly yours,

Diane L. Driscoll

Diane L. Driscoll
Regulatory Compliance Administrator

RECEIVED
MAR 8 12 22 PM '83
NJ DEPT. ENV. PROTECTION
DIV. WATER RESOURCES
MS&E

MAR 29 1983

Dept. Environmental Protection
Division of Water Resources
Water Quality Management

30 March 1983

Tel - is it ppb or ppm?

Pa

ATTACHMENT *3*

Attachment 1 J

Ref. No. 4 p. 252



PRINCETON AQUA SCIENCE

789 Jersey Avenue • P.O. Box 151 • New Brunswick, New Jersey 08902 • Telephone (201) 846-8800

February 17, 1983

Mr. Mike Barr
Essex Specialty Products
One Crossman Road So.
Sayreville, New Jersey 08872

Dear Mr. Barr:

Analysis of the three samples received January 21, 1983 has been completed. The results are presented in the attached tables.

The determinations were performed in accordance with EPA/NJDEP Approved Methodology.

If you have any questions, please feel free to contact me.

Very truly yours,

PRINCETON AQUA SCIENCE

Daniel Chen, P.E.
Laboratory Manager

DC/mjs
Enclosure
#5423

cc: Ms. D. Driscoll
Accounts Payable

ATTACHMENT

Ref. No. 4



PRINCETON AQUA SCIENCE

789 Jersey Avenue • P.O. Box 151 • New Brunswick, New Jersey 08902 • Telephone (201) 846-8800

Company Essex Specialty Products, Inc. Job #: 5423
Address One Crossman Road So. Date: 2/17/83
City Sayreville State NJ Zip 08872 Auth.: 41-3-3808
To Attn. of: Mr. Mike Barr Lot #: 2247
Invoice #: 6719
Sample Date: 1/21/83

REPORT OF ANALYSIS

Sample #106
(ppm)

% Petroleum Hydrocarbons

4.9

Phthalates (analysis by GC)
Bis(2-ethylhexyl)phthalate
Butyl benzyl phthalate
Di-N-butyl phthalate
Diethylphthalate
Dimethyl phthalate
Dioctyl phthalate

2,810
ND
ND
ND
ND
ND
ND

ND - Non Detectable less than 5 ppm.

ATTACHMENT

Q-5



PRINCETON AQUA SCIENCE

789 Jersey Avenue • P.O. Box 151 • New Brunswick, New Jersey 08902 • Telephone (201) 846-8800

Company	<u>Essex Specialty Products, Inc.</u>	Job #:	<u>5423</u>
		Date:	<u>2/17/83</u>
Address	<u>One Crossman Road So.</u>	Auth.:	<u>41-3-3808</u>
		Lot #:	<u>2247</u>
City	<u>Sayreville</u>	State	<u>NJ</u>
		Zip	<u>08872</u>
		Invoice #:	<u>6719</u>
		Sample Date:	<u>1/21/83</u>
To Attn. of:	<u>Mr. Mike Barr</u>		

REPORT OF ANALYSIS

Sample #104
(ppm)

% Petroleum Hydrocarbons

0.93

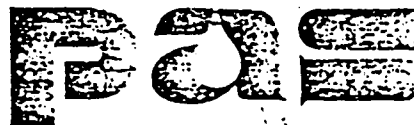
Phthalates (analysis by GC)
Bis(2-ethylhexyl)phthalate
Butyl benzyl phthalate
Di-N-butyl phthalate
Diethylphthalate
Dimethyl phthalate
Dioctyl phthalate

2,210
ND
ND
ND
ND
ND
ND

ND - Non Detectable less than 5 ppm.

ATTACHMENT

Q-6



PRINCETON AQUA SCIENCE

789 Jersey Avenue • P.O. Box 151 • New Brunswick, New Jersey 08902 • Telephone (201) 846-8800

Company Essex Specialty Products, Inc. Job #: 5423
Address One Crossman Road So. Date: 2/17/83
City Sayreville State NJ Zip 08872 Auth.: 41-3-3808
To Attn. of: Mr. Mike Barr Lot #: 2247
Invoice #: 6719
Sample Date: 1/21/83

REPORT OF ANALYSIS

Purgeable Organics (Analysis by GC/MS)

Sample #104
(ppm)

BENZENE	ND
BIS (CHLOROMETHYL) ETHER	ND
BROMODICHLOROMETHANE	ND
BROMOFORM	ND
CARBON TETRACHLORIDE	ND
CHLOROBENZENE	ND
CHLOROFORM	ND
CHLOROETHANE	ND
2-CHLOROETHYL VINYL ETHER	ND
CIS-1,3 DICHLOROPROPENE	ND
DIBROMOCHLOROMETHANE	ND
DICHLORODIFLUOROMETHANE	ND
1,1-DICHLOROETHANE	ND
1,2-DICHLOROETHANE	ND
1,1-DICHLOROETHYLENE	ND
1,2-DICHLOROPROPANE	ND
1,2-DICHLOROPROPYLENE	11.6
ETHYLBENZENE	ND
METHYL BROMIDE	ND
METHYL CHLORIDE	ND
METHYLENE CHLORIDE	ND
1,1,2,2-TETRACHLOROETHANE	ND
TETRACHLOROETHYLENE	7.1
TOLUENE	1210
TRANS 1,2-DICHLOROETHYLENE	ND
TRANS 1,3-DICHLOROPROPENE	ND
1,1,1-TRICHLOROETHANE	ND
1,1,2-TRICHLOROETHANE	ND
TRICHLOROETHYLENE	ND
TRICHLOROFLUOROMETHANE	ND
VINYL CHLORIDE	ND

ND-NONDETECTABLE LESS THAN 5.0 ppm

Consulting Environmental Scientists & Engineers

ATTACHMENT Q-7

Ref. No. 4 P. 256

PRINCETON AQUA SCIENCE

789 Jersey Avenue • P.O. Box 151 • New Brunswick, New Jersey 08902 • Telephone (201) 846-8800

Company <u>Essex Specialty Products, Inc.</u>	Job #: <u>5423</u>
Address <u>One Crossman Road So.</u>	Date: <u>2/17/83</u>
City <u>Sayreville</u> State <u>NJ</u> Zip <u>08872</u>	Auth.: <u>41-3-3808</u>
To Attn. of: <u>Mr. Mike Barr</u>	Lot #: <u>2247</u>
	Invoice #: <u>6719</u>
	Sample Date: <u>1/21/83</u>

REPORT OF ANALYSIS

Purgeable Organics (Analysis
by GC)

Sample #107
(ppm)

BENZENE	ND
BIS (CHLOROMETHYL) ETHER	ND
BROMODICHLOROMETHANE	ND
BROMOFORM	ND
CARBON TETRACHLORIDE	ND
CHLOROBENZENE	ND
CHLOROFORM	ND
CHLOROETHANE	ND
2-CHLOROETHYL VINYL ETHER	ND
CIS-1,3 DICHLOROPROPENE	ND
DIBROMOCHLOROMETHANE	ND
DICHLORODIFLUOROMETHANE	ND
1,1-DICHLOROETHANE	ND
1,2-DICHLOROETHANE	ND
1,1-DICHLOROETHYLENE	ND
1,2-DICHLOROPROPANE	ND
1,2-DICHLOROPROPYLENE	ND
ETHYLBENZENE	ND
METHYL BROMIDE	ND
METHYL CHLORIDE	ND
METHYLENE CHLORIDE	5.8
1,1,2,2-TETRACHLOROETHANE	ND
TETRACHLOROETHYLENE	ND
TOLUENE	ND
TRANS 1,2-DICHLOROETHYLENE	ND
TRANS 1,3-DICHLOROPROPENE	ND
1,1,1-TRICHLOROETHANE	0.73
1,1,2-TRICHLOROETHANE	ND
TRICHLOROETHYLENE	ND
TRICHLOROFLUOROMETHANE	ND
VINYL CHLORIDE	ND

ND-NONDETECTABLE LESS THEN 0.2 ppm

ATTACHMENT Q-5

ATTACHMENT R

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
POST OFFICE BOX CN-029
TRENTON, N. J. 08625

Dev. file

Essex Specialty Products, Inc.
One Crossman Road South
Sayreville, New Jersey 08873

NOV 23 1983

RE: Compliance Evaluation Inspection
Essex Chemical Wastewater Treatment Plant
NJPDES Permit No. NJ0003093

Gentlemen:

A Compliance Evaluation Inspection of your facility was conducted by a representative of this Division on October 4, 1983. A copy of the completed inspection report form is enclosed for your information.

Your facility received a rating of "CONDITIONALLY ACCEPTABLE" due to the following deficiency(ies):

Ground area at rear of plant shows evidence of oil spills, ~~and possibly other products.~~ It is suggested that this area be paved with concrete to allow for better drainage runoff. Prior to placement of the concrete pad, all contaminated soil should be excavated and properly disposed of. Disposal of the contaminated soil should be coordinated with the Division of Waste Management, telephone number (609) 292-5560.

Since the deficiency(ies) cited are presently, or could, in the future, adversely affect effluent quality, you are requested to institute measures to correct the deficiency(ies) in a timely fashion. A written report concerning specific details of remedial measures to be instituted, as well as an implementation timetable, should be submitted to this Department and USEPA, Permits Administration Branch within twenty (20) calendar days of receipt of this correspondence.

Both the New Jersey Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and the Federal Water Pollution Control Act, as amended (33 U.S.C., 460 et seq.) provide for substantial penalties in cases of permit violations.

ATTACHMENT R-1

Attachment F

Ref No 4 p. 259

Please direct all correspondence and inquiries to Donald Knause, the Compliance Investigator responsible for this case, who can be reached at (609) 292-0686 or by letter through this Division.

Very truly yours,

Original signed & mailed

Alfred W. Valencia
Field Supervisor
Central Region
Enforcement Element

A45:lec

Enclosure

cc: Dr. Richard A. Baker, USEPA - Region II
Richard Caspe, USEPA - Region II
Middlesex County Health Officer
Michael Barr, Plant Manager
Vince Krsak, Waste Management

bcc: Don Knause
John Tomasiello
Paul Harvey
Marianne Montgomery
Central Region File/Murman
Division File

ATTACHMENT R-2

Ref. No. 4 p. 26c

ATTACHMENT S

INCIDENT NOTIFICATION REPORT

12-19-24

☐ TRENTON DISPATCH ☒ DIV. OF WASTE MANAGEMENT ☐ DIV. OF ENVIR. QUALITY ☐ DIV. OF WATER RESOURCES
☐ HQ FIELD OFFICE: ☐ NORTHERN ☐ METRO ☒ CENTRAL ☐ SOUTHERN

DATE 04-29-86 TIME 11:55 REC'D BY K.C. 2476 PHONE 201-727-2100
(Military)

INCIDENT REPORTED BY:

CASE NO. 86-04-29-036NAME Mr. Verdi PHONE 201-727-2100STREET 1 Crossman RdCITY Sayerville STATE _____AFFILIATION Essex Specialty Products Inc.

NATURE OF INCIDENT:

EMERGENCY: ☒ FIRE ☒ EXPLOSION ☐ DRUMS ☐ SPILL ☐ DERAILMENT ☐ MUA
COMPLAINT: ☒ SMOKE ☒ ODORS ☐ DUST ☐ SEWAGE ☐ NUISANCE ☐ ILLEGAL DUMPING
OTHER: ☐

INCIDENT LOCATION:

NAME (Site) Essex Specialty Products ☐ UNK PHONE _____STREET 1 Crossman RdCITY Sayerville COUNTY SP12/16 STATE _____ ZIP CODE _____

STATUS AT SCENE OF INCIDENT:

DATE OF INCIDENT: 04-29-86 TIME: 0700

ANYONE HOSPITALIZED ☐ YES ☒ NO
AREA EVACUATED ☐ YES ☒ NO
CONTAMINATION OF ☒ AIR ☒ LAND ☐ WATER
PUBLIC EXPOSURE ☒ YES ☐ NO
RECEIVING WATER _____ POTABLE WATER SOURCE ☐ YES ☐ NO
WIND DIRECTION _____ LOCATION TYPE ☐ CITY ☒ INDUSTRIAL ☐ RURAL

SOURCE OF INCIDENT/PROBLEM:

☒ KNOWN ☐ UNKNOWNCOMPANY NAME Essex Specialty Products PHONE _____CONTACT Mr. Verdi TITLE _____

STREET _____

CITY _____ COUNTY _____ STATE _____ ZIP CODE _____

IDENTITY OF SPILLED AND/OR DISCHARGED SUBSTANCE:

☒ KNOWN ☐ UNKNOWNNAME OF SUBSTANCE Paper PolymerAMT. 8 lb. A/P/E _____ SUBSTANCE CONTAINED ☐ YES ☐ NO ☐ UNKNOWN

OFFICIALS NOTIFIED. (A-310)

HEALTH DEPT.: PERSON _____ PHONE _____ DATE _____

LOCAL MUNIC.: PERSON _____ PHONE _____ DATE _____

INCIDENT REFERRED TO: ☐ BFO ☐ BERC ☐ DCJ ☐ DWR ☐ F&G ☒ BAPC ☐ HD1. PERSON NFH PHONE _____ DATE 04/30/86

2. PERSON _____ PHONE _____ DATE _____

COMMENTS:

Fire is in research and development labs.
Fire was out at time of report.

COPIES:

White - File

Yellow - Trenton Dispatch

Pink - DWM Enforcement

ATTACHMENT S

Ref. No. 4 P. 262

ATTACHMENT T

Industrial Site Evaluation Element
Bureau of Environmental Evaluation and Cleanup Responsibility Assessment
Environmental Cleanup Responsibility Act

Report of Inspection

ECRA Case #88904

Date of Inspection: 5/22/89

Inspection Category: Initial

Inspector: Stephen E. Maybury

Industrial Establishment: Essex Specialty Products, Inc.

Location: 1 Crossman Road S., Sayreville Boro, Middlesex County

Individuals Involved: Irwin J. Zonis, Essex Chemical Corp.
Bob Hoffman, Essex Chemical Corp.
Calven J. Bensining, Essex Chemical Corp.
Drew Gould, ERM, Inc.
Joe Hochreiter, ERM, Inc.
Tricia Caliguire, McCarter & English
Jay Kwiecinski, Sayreville Health Dept.
Joe Diemm, Middlesex County Hazardous Material
Units
Matthew Fitzgerald, Middlesex County Hazardous
Material Units
Elizabeth Opitz, NJDEP/BGWDC

NARRATIVE DESCRIPTION

The site is an 18 acre facility that manufactures automotive products including structural adhesives, sound pads, body sealers, trim adhesives, vibration reduction materials, and strengthening products. The facility also has a small laboratory.

The facility will continue its current operation as the ECRA triggering transaction is the transfer of stock.

Arrived on site at 1050 hrs. The weather was warm and sunny. The site inspection began with a short meeting to discuss the general site conditions. A walk through inspection was then conducted in the interior and exterior of the facility. All areas of concern identified in the site evaluation submission (SES) were observed and discussed during the inspection. It should be noted that as stated by the applicant in the SES, the floor drains in the manufacturing building were observed to be sealed. Left the site at 1425 hrs. Following are the deficiencies noted during the inspection.

DEFICIENCIES NOTED

1. Potential asbestos containing insulation was observed in the building interior and on piping and tanks outside.
2. A steam condensate line located outside the hot box entered an unidentified drain pipe.

ATTACHMENT T-1
Ref No. 40.26

3. The construction of the oil/water separator tank is unknown.
4. The use of the copper pipe that exits the wall in the permapol tank area is unknown.
5. The use and decommissioning details of a former tank farm located at the (exterior) corner of the laboratory building and production area was unknown.
6. Black stained soil was observed east of the production and warehouse buildings along the fenceline.
7. An area of concern that was not identified in the site evaluation submission (SES) was described as a filter burn area. This area was observed to have been recently graded and disturbed with earth moving equipment.
8. The stained soil area, identified in the SES, west of the hazardous waste storage area was observed to have been recently disturbed and graded with earth moving equipment. The stain has reportedly been excavated and post-excavation samples have been collected and the results are currently pending. A white material, described by a site representative as road salt, was observed mixed in with the soil.
9. The integrity of the sumps and concrete containment areas at the hazardous waste storage area and tank farm is not documented. One tank in the tank farm containing Satizol 711 was observed to have a deteriorated concrete base below the manway/cleanout. This appears to be as the result of a previous tank leak.
10. A black soil stain and apparently stressed vegetation (grass) was observed downgradient of the Kender Extruder Hot Oil Heater.
11. An electrical transformer, not identified in the (SES), was observed at the west side of the site. There was no sign of leakage or spillage around the unit during the inspection.
12. The history of paving could not be fully described during the site inspection.
13. A small hole in the bank of Burts Creek (north of the Laboratory building) appears to be the location of a former or current discharge point to the creek.
14. The location of the former NJPDES discharge point to Burts Creek is not identified on the appropriate maps in the SES submission.
15. A fine metallic-like powder was observed in a small pile on the stone outside the garage door at the manufacturing building and on the soil in the recently graded area east of the tank farm.

ATTACHMENT T-2

Ref. No. 4 P. 265

ACTIONS REQUIRED ON THE PART OF THE APPLICANT

1. Submit documentation regarding the presence of asbestos insulation materials and determine if the material is friable. Provide an appropriate followup proposal.
2. Submit documentation regarding the unidentified drain pipe that receives steam condensate outside of the "hot box".
3. Submit construction details of the oil water separator. If this information does not adequately document its current integrity, provide an appropriate followup proposal to address this area.
4. Provide clarification regarding the use of the pipe exiting the permapol tank area and provide an appropriate followup proposal.
5. Submit full details regarding the history, use, location, and, when appropriate, the decommissioning details of all past and current chemical storage areas. Submit appropriate maps documenting the above.
6. Submit documentation and full details regarding the source of the black stained soil along the eastern fence line and provide an appropriate proposal for sampling.
7. Submit details documenting all activities at the filter burn area and provide an appropriate sampling proposal.
8. Submit the analytical results of post excavation sampling and provide an appropriate followup proposal regarding the stained soil area west of the hazardous waste storage area. This proposal must include documentation as to the composition of white material observed and take into account the disturbance of this area.
9. Submit documentation regarding the construction details, all past spills or leaks, and the current integrity of the containment systems in the hazardous waste storage and tank farm areas. Provide an appropriate followup proposal.
10. Submit a sampling proposal to address soil staining and a full description and history of the Kender Extruder Hot Oil Heater area.
11. Submit documentation as to the history and presence or absence of PCBs in the electrical transformer on site.
12. Submit documentation and appropriate maps regarding the history of paved areas on site.
13. Determine if the hole in the bank of Burts Creek is a former or current discharge point and provide an appropriate followup proposal.
14. Revise all appropriate mapping to include the former NJPDES discharge location.

ATTACHMENT

F-3
Ref. No. 4 P. 266

15. Submit documentation as to the source and composition of the fine metallic-like powder on site and provide an appropriate followup proposal.

ACTIONS REQUIRED ON THE PART OF BEECRA

1. No further action needed at this time.

Inspector/Case Manager Signature

Steph E. Mayling

Approved:

Mark Morgan, Supervisor
Bureau of Environmental Evaluation
and Cleanup Responsibility Assessment

ATTACHMENT

T-4
Ref 11a U D. 267

ATTACHMENT U

Ref. No. 4 p. 268



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WASTE MANAGEMENT
32 E. Hanover St., CN 028, Trenton, N.J. 08625

JACK STANTON
DIRECTOR

18 AUG 1983

LINO F. PEREIRA
DEPUTY DIRECTOR

Diane L. Driscoll
Regulatory Compliance Administrator
Essex Specialty Products, Inc.
1401 Broad Street
Clifton, New Jersey 07105

RE: Essex Speciality Products, Inc., 1 Crossman Road,
South Sayreville, New Jersey - EPA ID NO. NJD002568715 ✓

Dear Ms. Driscoll:

The Bureau of Hazardous Waste Engineering (the Bureau) acknowledges receipt of the November 5, 1982 and May 26, 1983 submittals in which information was provided with respect to the above referenced facility's request to be delisted as a hazardous waste treatment, storage, and disposal (TSD) facility from the New Jersey Department of Environmental Protection's interim status list.

Essex Specialty Products, Inc. has filed with the USEPA as a TSD facility with containerized/drummed hazardous waste storage activity (S01) at 5,000 gallons, hazardous waste surface impoundment treatment (T02) at 3500 gallons/day, and hazardous waste incineration (T03) at one ton/day.

Based upon your submittals, the Bureau concludes the following regarding your Part A application activity:

1. The S01 process code listed was filed to reflect the storage of hazardous waste in containers/drums for a period of ninety (90) days or less.
2. The T02 process code listed was inappropriately filed since construction and use of a hazardous waste surface impoundment did not occur.
3. The T03 process code listed was inappropriately filed since hazardous waste incineration did not occur.

ATTACHMENT U-1:

Diane L. Driscoll

-2-

18 AUG 1983

If this interpretation is incorrect, please notify this Bureau immediately.

Assuming the aforementioned information is correct, the Bureau concludes that Essex Specialty Products, Inc.'s hazardous waste TSD/facility as delineated in the RCRA Part A permit application and identified by the following EPA ID number:

EPA ID NO. NJD002568715

has been excluded from applicable facility regulations under N.J.A.C. 7:26-7.1 et seq. because the above referenced facility:

1. Accumulates hazardous waste in containers/drums for a period of ninety (90) days or less.
2. Has not and no longer intends to implement the hazardous waste incineration (T03) and surface impoundment treatment (T02) processes filed for in the Part A permit application.

This exclusion classifies your facility solely as a generator provided the following conditions are complied with:

1. All such is, within 90 days or less, shipped off-site to an authorized facility or placed in an on-site authorized facility, as defined at N.J.A.C. 7:26-1.4.
2. The waste is placed in containers which meet the standards of N.J.A.C. 7:26-7.2 and are managed in accordance with N.J.A.C. 7:26-9.4(d).
3. The date upon which each period of accumulation begins is clearly marked and visible for inspection on each container.
4. The generator complies with the requirements for owners and operators of N.J.A.C. 7:26-9.6 and 9.7 concerning preparedness and prevention, contingency plans and emergency procedures as well as N.J.A.C. 7:26-9.4(g) concerning personnel training.

This written acknowledgement of the exclusion of the above identified facility from N.J.A.C. et seq. is based expressly on the review of the aforementioned correspondence. This letter makes no claim as to the extent and physical condition of the actual hazardous waste activities occurring at the site mentioned above.

ATTACHMENT U-2

Ref. No. 4 p. 270

Diane L. Driscoll

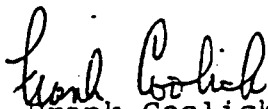
-3-

18 AUG 1983

Essex Specialty Products, Inc.'s hazardous waste facility above is no longer included in DEP's list of "existing facilities" (see N.J.A.C. 7:26-1.4 and 12.3) nor is it included in the USEPA's list of TSD facilities and therefore does not need to conform with the interim operating requirements of N.J.A.C. 7:26-1 et seq. for "existing facilities" which would include the TSD facility annual report. It is the company's responsibility to operate within the conditions listed above. To operate a hazardous waste facility without prior approval from the DEP is a violation of the Solid Waste Management Act N.J.S.A. 13:1E-1 et seq.

If you have any questions on this matter, please contact Mr. William Sharples of my staff at (609) 633-7713.

Very truly yours,



Frank Coolick, Chief
Bureau of Hazardous
Waste Engineering

FC:WS:jb

c: Dave Shotwell
NJDEP, DWM, BCE

Joel Golumbek
USEPA, Region II

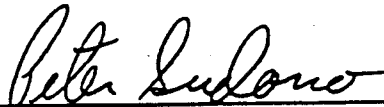
ATTACHMENT U-3

Ref. NO. 4 P. 271

ATTACHMENT V

**Phase I
ECRA Sampling Plan Results
and
Phase II Sampling Proposal
for
Essex Specialty Products, Inc.
Sayreville Facility
Volume I**

ECRA Case No. 88904
May 1990



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File: 780-05-04

ATTACHMENT *V4*

Ref. No. 4 p. 273

TABLE OF CONTENTS

VOLUME I

	<u>Page</u>
Executive Summary	1
Section 1 - Introduction	1-1
1.1 Purpose and Scope of Investigation	1-1
1.2 Site Descriptions and Environmental Setting	1-2
1.3 Rationale for Sampling Plan	1-3
1.3.1 Areas of Environmental Concern	1-3
1.3.2 Sampling Locations and Analytical Protocol	1-5
Section 2 - Modifications to Original Sampling Plan	2-1
2.1 Reasons for Original Sampling Plan Modification	2-1
2.2 Modifications by Area of Environmental Concern	2-2
2.2.1 Area 1 - Bis (2-ethylhexyl) Phthalate Spill and Seep Area	2-3
2.2.2 Area 2 - Tank Farm and Adjacent Unpaved Areas	2-5
2.2.3 Area 3 - Hazardous Waste Drum Storage Area and Unpaved Area to the West	2-7
2.2.4 Area 4 - Empty Drum Storage Area	2-8
2.2.5 Area 5 - Filter Burn Area	2-9
2.2.6 Area 6 - Former NJPDES Discharge Point	2-10
2.2.7 Area 7 - Kneader Extruder Hot Oil Heater	2-10
2.2.8 Area 8 - Steam Condensate Drain	2-10
2.2.9 Area 9 - Spill Prevention/Sewer Drains	2-11
2.2.10 Area 10 - Shipping Door Area	2-13
2.2.11 Area 11 - Transformer	2-13
2.2.12 Area 12 - Concrete Diked Storage Areas	2-13
2.2.13 Area 13 - Metal Cuttings Area	2-14
Section 3 - Methodology	3-1
3.1 Soils/Sediment Investigation	3-1
3.1.1 Shallow Soil Sampling and Spill Prevention/Sewer Drain Sampling Methods	3-1
3.1.2 Borehole Soil Sampling Methods	3-2
3.1.3 Creek Sediment Sampling	3-2

TABLE OF CONTENTS

	<u>Page</u>
3.2 Ground Water Investigation	3-3
3.2.1 Well Drilling, Construction, and Development Methods	3-3
3.2.2 Ground Water Sampling	3-5
3.2.3 Surveying	3-5
3.2.4 Synoptic Water Level Surveys	3-5
3.3 Quality Assurance and Quality Control Measures	3-6
3.3.1 Decontamination Procedures	3-6
3.3.2 QA/QC Samples	3-6
3.3.3 NJDEP Certified Laboratory Analysis	3-7
3.3.4 ERM Data Validation	3-8
Section 4 - Hydrogeology	4-1
4.1 Regional Hydrogeology	4-1
4.2 Site Specific Hydrogeology	4-1
4.2.1 Subsurface Lithology	4-1
4.2.2 Ground Water Elevation	4-3
Section 5 - Analytical Results	5-1
5.1 Analytical Results by Area of Environmental Concern	5-2
5.1.1 Area 1 - Bis (2-ethylhexyl) Phthalate Spill and Seep Area	5-2
5.1.2 Area 2 - Tank Farm and Adjacent Unpaved Areas	5-3
5.1.3 Area 3 - Hazardous Waste Drum Storage Area and Unpaved Area to the West	5-5
5.1.4 Area 4 - Empty Drum Storage Area	5-6
5.1.5 Area 5 - Filter Burn Area	5-6
5.1.6 Area 6 - Former NJPDES Discharge Point	5-6
5.1.7 Area 7 - Kneader Extruder Hot Oil Heater	5-7
5.1.8 Area 8 - Steam Condensate Drain	5-7
5.1.9 Area 9 - Spill Prevention/Sewer Drains	5-7
5.1.10 Area 10 - Shipping Door Area	5-8
5.2 Facility Water Quality	5-8

ATTACHMENT



Ref. NO.4 p. 275

TABLE OF CONTENTS

	<u>Page</u>
Section 6 - Discussion of Analytical Results	6-1
6.1 Discussion of Areas of Environmental Concern	6-1
6.1.1 Area 1 - Bis (2-ethylhexyl) Phthalate Spill and Seep Area	6-1
6.1.2 Area 2 - Tank Farm and Adjacent Unpaved Areas	6-3
6.1.3 Area 3 - Hazardous Waste Drum Storage Area and Unpaved Area to the West	6-4
6.1.4 Area 4 - Empty Drum Storage Area	6-5
6.1.5 Area 5 - Filter Burn Area	6-5
6.1.6 Area 6 - Former NJPDES Discharge Point	6-5
6.1.7 Area 7 - Kneader Extruder Hot Oil Heater	6-6
6.1.8 Area 8 - Steam Condensate Drain	6-6
6.1.9 Area 9 - Spill Prevention/Sewer Drains	6-6
6.1.10 Area 10 - Shipping Door Area	6-7
6.2 Discussion of Facility Ground Water Quality	6-7
Section 7 - Proposed Phase II Sampling Plan	7-1
7.1 Proposed Soil Sampling: Area 1	7-1
7.2 Proposed Creek Sediment Sampling: Area 1	7-2
7.3 Proposed Ground Water Sampling	7-3
7.4 Sampling Methodologies	7-3
7.5 Sample Handling and QA/QC Procedures	7-3
7.6 Laboratory Selection and Analytical Methods	7-4

Bibliography

VOLUMES II - IX: LABORATORY ANALYTICAL DATA

ATTACHMENT



Ref. No. 4 p. 276

Following Page

Figures

1-1	Site Location Map	1-2
2-1	Area 3 - Unpaved Area West of Hazardous Waste Drum Storage Area Photographs*	2-8
2-2	Area 8 - Steam Condensate Drain Area Photographs*	2-11
4-1	Ground Water Elevation Map, Shallow Aquifer, 4 April 1990	4-3
4-2	Ground Water Elevation Map, Deep Aquifer, 4 April 1990	4-3
4-3	Ground Water Elevation Map, Shallow Aquifer, 7 May 1990	4-3
4-4	Ground Water Elevation Map, Deep Aquifer, 7 May 1990	4-3
5-1a	Area 2 - TPH Analytical Results - Shallow Samples	5-4
5-1b	Area 2 - TPH Analytical Results - Deep Samples	5-4
5-2	Area 2 - BN+15 Analytical Results	5-4
5-3	Area 3 - TPH Analytical Results - Shallow Samples	5-5
5-4	Area 9 - Spill Prevention/Sewer Drain Analytical Results	5-7
5-5a-f	Area 9 - Spill Prevention/Sewer Drain Photographs*	5-8
7-1	Proposed Phase II Sampling	7-2

Tables

2-1	Sampling Summary (AECs)	2-2
2-2	Ground Water Sampling Summary	2-2
2-3	Contents of Former UGST Farm	2-3
3-1	Ground Water Sampling Information	3-5
3-2	Analytical Methods	3-7
4-1	Monitoring Well Elevations and Depth to Water Measurements	4-3
5-1	NJDEP Guidelines for Evaluating Possible ECRA Cleanup Requirements	5-1
7-1	Proposed Phase II Sampling Summary	7-2

ATTACHMENT

V-5



Ref. No. 4 p. 277

Plates

- 1 Base Map with Areas of Environmental Concern
- 2 Sample Locations
- 3 Cross Section A-A'
- 4 Area 1 Analytical Results

Attachments

- A Revised Seep Area Work Plan
- B Monitoring Well and Soil Boring Logs
- C Soil Sample Description
- D Monitoring Well Certification Forms A and B
- E Analytical Results and Data Validation
- F Asbestos Assessment



SECTION 1

INTRODUCTION

1.1 Purpose and Scope of Investigation

This report contains the results of the Phase I Sampling Plan for the facility and a proposed Phase II Sampling Plan. This report is submitted pursuant to the requirements of the New Jersey Environmental Cleanup Responsibility Act (ECRA) for Case No. 88904.

The purpose of the Phase I investigation was to document the nature and extent, if any, of soil and ground water contamination at the facility, and identify those areas of environmental concern (AECs) which require further delineation and/or remediation.

On 31 January 1989, Essex submitted to the New Jersey Department of Environmental Protection (NJDEP) a sampling plan (the Original Sampling Plan) as part of the ECRA Site Evaluation Submission prepared by Environmental Resources Management, Inc. (ERM).

On 25 July 1989, Essex received the NJDEP's comments on both the Original Sampling Plan and a report of the inspection of the facility (the Response Document). The Response Document requested that Essex provide the NJDEP with a Supplemental Sampling Plan. By letter of 12 August 1989, Essex requested a 30-day extension of the deadline for a response to the Response Document. This extension was granted by then-case manager, Steve Maybury, on 21 August 1989. By telephone conference of 31 August 1989, Drew Gould of ERM obtained Mr. Maybury's authorization to (1) implement a plan for source control of the seep area in advance of receiving formal NJDEP approval, and

(2) submit the written work plan for the seep area on 22 September 1989. Essex submitted a Supplemental Sampling Plan on 22 September 1989 and received conditional approval of the Supplemental Sampling Plan from the NJDEP on 19 February 1990.

This report describes:

- The implementation of the Supplemental Sampling Plan;
- Specific methodologies used during the investigation;
- Site specific hydrogeologic and chemical findings; and
- Essex's proposal for a second phase of sampling to further delineate the contamination in one AEC.

1.2 Site Description and Environmental Setting

The facility is located in Sayreville Borough, Middlesex County, New Jersey. The property is identified as Lot 2 of Block 251 on the Sayreville tax maps. The facility site is located in the north-central portion of the South Amboy, New Jersey Quadrangle of the U.S.G.S. 7.5 minute series topographic map (photo revised 1981). The address of the facility is 1 Crossman Road South, Sayreville, New Jersey, 08872. The location of the facility is shown on Figure 1-1.

The facility encompasses approximately 18 acres of land and includes an existing office/manufacturing building. The majority of the plant site is paved with asphalt or reinforced concrete. A small percentage of the property that is unrelated to Essex's operation is landscaped. These landscaped areas are located to

the north of the office/manufacturing building, and west and east of the parking lot (see Plate 1)¹.

A former chemical plant (Stayflex Chemical) borders the facility to the west, a steel plant (New Jersey Steel Company) to the northwest, a small retail shopping center to the north and undisturbed wooded areas to the east and south.

The facility site was unused woods and brush prior to 1965. There is no evidence, and no recollection by facility officials, of this site having any previous commercial or industrial uses prior to 1965.

1.3 Rationale for Sampling Plan

1.3.1 Areas of Environmental Concern

The Phase I Sampling Plan for the facility was designed based on the identification of specific areas of environmental concern (AECs). These areas were identified based on observations of current site conditions/appearance, past process operations, and NJDEP observations during the 22 May 1989 site inspection. The AECs investigated are listed below, identified in Plate 1, and discussed in more detail in Section 2.

- Area 1: Bis (2-ethylhexyl) phthalate spill and seep area
- Area 2: Tank Farm and adjacent unpaved areas
- Area 3: Hazardous Waste Drum Storage Area and unpaved area to the west

¹The Essex Specialty Products, Inc., laboratory building is located approximately 250 feet southwest of the office/manufacturing building, and was presented to NJDEP as a separate ECRA submittal. A negative declaration was approved for the laboratory building in June 1989.

- Area 4: Empty Drum Storage Area
- Area 5: Filter Burn Area
- Area 6: Former NJPDES discharge point
- Area 7: Kneader Extruder Hot Oil Heater
- Area 8: Steam Condensate Drain
- Area 9: Spill Prevention/Sewer Drains
- Area 10: Shipping Door Area
- Area 11: Transformer
- Area 12: Concrete Diked Storage Areas
- Area 13: Metal Cuttings Area

Areas 1 through 10 involved one or more sources of potential chemical contamination. Each of these areas was evaluated through some combination of soil, creek water, creek sediment, and ground water sampling. For Areas 11 through 13, the NJDEP requested additional documentation which was supplied in the Supplemental Sampling Plan. In addition, a facility-wide asbestos assessment which was requested in the Response Document is supplied in Attachment F.

In addition to specific AECs, facility-wide ground water quality was evaluated by analysis of samples collected from 18 ground water monitoring wells at the facility.

1.3.2 Sampling Locations and Analytical Protocol

Within each area of environmental concern, observations of current site conditions/appearance, knowledge of current and past process operations and spill history, and records documenting the types of chemicals used in each area, provided a basis for determining sampling locations and a master list of analytical parameters for each sample matrix.

The master list of analytical parameters includes Petroleum Hydrocarbons (TPH), Volatile Organic Compounds + 15 Tentatively Identified Compounds (VO+15), and Base/Neutral Organic Compounds + 15 Tentatively Identified Compounds (BN+15).

All creek water, creek sediment, and ground water samples were analyzed for each parameter on the master list of analytical parameters. One soil sample (SS-13) located near a steam condensate discharge point (Area 8) was analyzed for BN+15 and priority pollutant metals (PP metals), and one ground water sample located downgradient of the Tank Farm (Area 2) was analyzed for the master list of analytical parameters and Methyl Ethyl Ketone (MEK) as determined by the NJDEP in the Conditional Approval Letter.

Table 2-2

**Essex Sayreville Facility
Ground Water Sampling Summary**

Well Number	Location	Analytes	Matrix	Type	Aquifer Sampled
MW-1S	SE of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Shallow
MW-1D	SE of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Deep
MW-2S	S of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Shallow
SMW-3S	S of Warehouse	VO+15, BN+15, TPH, MEK	Ground Water	Grab	Shallow
SMW-4S	E of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Deep
SMW-107D	N of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Shallow
SMW-1AS	E of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Deep
SMW-1AD	E of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Shallow
OW-2S	N of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Shallow
OW-3S	NW of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Deep
OW-3D	NW of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Shallow
OW-4S	NW of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Deep
OW-4D	NW of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Shallow
OW-106S	N of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Deep
OW-106D	N of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Shallow
OW-107S	N of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Shallow
OW-111S	N of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Deep
OW-111D	N of Warehouse	VO+15, BN+15, TPH	Ground Water	Grab	Deep

TPH = Total Petroleum Hydrocarbons
 BN+15 = Base/Neutral Organic Compounds Plus 15 Tentatively Identified Compounds
 VO+15 = Volatile Organic Compounds Plus 15 Tentatively Identified Compounds

ATTACHMENT V-12



Ref. NO. 4 P. 284

2.2.1: Area 1 - Bis (2-ethylhexyl) phthalate spill and seep area

The Original Sampling Plan discussed a 1978 spill and leak of bis (2-ethylhexyl) phthalate from storage tanks #101 and #102, (see Table 2-3) located in the former underground tank (UGST) farm¹. The former underground storage tank farm was removed in 1983, and the subsequent discovery of a seep of oily liquid into the adjacent Burt's Creek suggested that a source area of bis (2-ethylhexyl) phthalate remained. Essex recommended that a series of soil, stream sediment and water, and ground water samples be collected to identify the source of the bis (2-ethylhexyl) phthalate. Sixteen soil sample locations (S-3 through S-18) were recommended on a 20 and 40 foot grid network, with samples to be collected at the surface and at 1.5 foot depth intervals to the water table. Five creek sediment samples (S-19 through S-23) were also recommended. Each soil and creek sediment sample was recommended for BN+15 analysis. Essex recommended that a round of ground water samples be collected and analyzed from the 12 existing ground water monitoring wells. Essex also recommended the sampling and analysis of a ground water sample from 3 new ground water monitoring wells, which would be installed to help monitor overall site ground water quality. BN+15 and VO+15 analysis was recommended for each ground water sample.

In the Response Document, the NJDEP requested implementation of source control for the bis (2-ethylhexyl) phthalate seep area. The NJDEP requested documentation that the area of the 1978 spill of bis (2-ethylhexyl) phthalate in the

¹The tanks in the former UGST farm were only partially buried. See Attachment 6 of the Supplemental Sampling Plan for documentation.

TABLE 2-3

**CONTENTS OF FORMER UGST FARM
ESSEX SAYREVILLE FACILITY**

	TANK #	CAPACITY	CONTENTS	STATUS
Former UGST	100	3,000	Toluene	Removed in 1983
	101	3,000	Bis (2-Ethylhexyl) Phthalate (DOP)	Removed in 1983
	102	3,000	Bis (2-Ethylhexyl) Phthalate (DOP)	Removed in 1983
	103	3,000	Di Isodecyl Phthalate (DIDP)	Removed in 1983
	104	3,000	Di Isodecyl Phthalate (DIDP)	Removed in 1983
	105	3,000	Reclaimed Solvent	Removed in 1983
	106	3,000	Xylene	Removed in 1983
	107	3,000	Reclaimed Solvent	Removed in 1983
	108	5,000	Reclaimed Solvent	Removed in 1983
	109	5,000	Heavy Naphenic Oil (Sun Oil)	Removed in 1983
	110	5,000	Toluene	Removed in 1983
	111	5,000	Heavy Naphenic Oil (Sun Oil)	Removed in 1983
	112	5,000	Reclaimed Solvent	Removed in 1983
	113	7,500	Toluene	Removed in 1983
	114	7,500	Mineral Spirits	Removed in 1983
	115	7,500	Methyl Ethyl Ketone (MEK)	Removed in 1983
	116	1,500	Diesel	Removed in 1983

ATTACHMENT

V-14



Ref. No. 4 p. 286

former UGST farm is free of contamination. Essex was requested to install a deep ground water monitoring well at the location of OW-107S to further evaluate ground water quality. The NJDEP also approved the stream sediment sampling locations .

In the Supplemental Sampling Plan, Essex proposed a soil boring at the former location of UGST #101, to determine whether the backfill material and underlying soil are free of contamination. Soil samples were proposed at depths of 1'-2' (SS-9A) and 6'-6.5' (SS-9B), and were recommended for TPH, BN+15, and VO+15 analysis. Essex agreed to install a deep ground water monitoring well, SMW-107D, and recommended that all ground water samples be analyzed for TPH, BN+15, and VO+15.

As part of the Supplemental Sampling Plan, Essex developed a Seep Area Work Plan which provided a detailed history of the Seep Area, and proposed an amended soil sampling plan to delineate the bis (2-ethylhexyl) phthalate contamination. The sampling plan consisted of 8 soil sample locations (R-1 through R-8) with samples to be collected at the surface and at 1.5 foot depth intervals to the water table. Essex also proposed two creek water samples (RC-1, and RC-2) in the Supplemental Sampling Plan to better characterize water quality in Burt's Creek. All creek sediment, creek water, and ground water samples were recommended for TPH, BN+15, and VO+15 analysis. In addition, Essex recommended that a ground water recovery system be installed, and recommended that contaminated soils be excavated once the extent of contamination was delineated.

Seep Area Sampling and analysis was performed in October 1989, and consisted of the sampling and analysis of soil from

sample locations R-1 through R-8. Based on the results of the first round of sampling, a second round of soil sampling and analysis consisting of soil sample locations DR-10 through DR-14 was performed in December 1989. The results of this sampling and analysis are presented in Attachments B and C, and a detailed review of the Seep area is provided in the Revised Seep Area Work Plan (see Attachment A).

In the Conditional Approval Letter, the NJDEP requested that Essex apply for all necessary permits in order to begin remediation of the Seep Area. On 30 March 1990, Essex submitted Applications for Stream Encroachment and Freshwater Wetlands permits to the NJDEP Division of Coastal Resources.

During Field Sampling from 5 March to 5 April 1990, the soil boring, creek sediment and water, and ground water samples were collected. The depth of soil sample SS-9B was changed to 5'-5.5' in order to collect this sample above the water table.

2.2.2: Area 2 - Tank Farm and adjacent unpaved areas

In a November 1988 pre-ECRA site inspection, ERM noticed two areas of dark colored soil in the unpaved area adjacent to the Tank Farm. In January 1989 a soil sample was collected from each of these areas, P-3 and P-4, and analyzed for TPH and VO+15, and TPH and BN+15 respectively as part of the At-Risk Sampling program. No TPH or VO+15 compounds were detected in soil sample P-3, no BN+15 compounds were detected in soil sample P-4, but 2200 ppm TPH was detected in soil sample P-4.

In the Original Sampling Plan, Essex proposed the installation of two ground water monitoring wells, MW-1S, and MW-1D, to

monitor ground water quality in the upper and lower aquifers respectively. These wells were intended to supplement the existing ground water monitoring program, and help better determine the direction of ground water flow. Essex proposed that these monitoring wells be sampled and analyzed for VO+15 and BN+15.

In the Response Document, the NJDEP requested the results of the At-Risk Sampling, and additional documentation regarding the Tank Farm contents, history, and construction. This information was provided in Attachments 3 and 5, and Table 3 of the Supplemental Sampling Plan. The NJDEP also requested that an additional shallow monitoring well be installed downgradient of the Tank Farm.

In the Supplemental Sampling Plan, Essex proposed that soil samples be collected at 12 additional locations (P-10 through P-21) to delineate the extent of the TPH contamination in the unpaved area east of the Tank Farm, adjacent to soil sample P-4. Essex recommended that all 12 of the locations be sampled at the surface (0'-2'), that 4 of the 12 locations be sampled at a depth of 2'-4', and that all soil samples should be analyzed for TPH. Essex also proposed an additional shallow monitoring well downgradient (west) of the Tank Farm, SMW-3S, and that all ground water samples be analyzed for TPH, VO+15, and BN+15.

In the Conditional Approval Letter the NJDEP approved the proposed soil and ground water sampling locations, but requested that all 12 sample locations be sampled at depths of 0'-0.5', and 1.0'-1.5', and that 25% of the soil samples be analyzed for BN+15 in addition to TPH. The NJDEP also requested that the ground water sample from SMW-3S be analyzed for Methyl Ethyl Ketone (MEK) in addition to TPH.

VO+15, and BN+15. No additional modifications were made during field sampling.

2.2.3: Area 3 - Hazardous Waste Drum Storage Area and unpaved area to the west

In a November 1988 pre-ECRA site inspection, ERM noticed an area of dark colored soil in the unpaved area to the west of the Hazardous Waste Drum Storage area. In January 1989, soil sample P-2 was collected from this area and analyzed for TPH and BN+15 as part of the At-Risk Sampling program. No BN+15 compounds were detected, but 1460 ppm TPH were detected in soil sample P-2.

In the Original Sampling Plan, Essex proposed installing a shallow monitoring well (MW-2S) in the unpaved area to the west of the Hazardous Waste Drum Storage Area to monitor ground water quality in the upper aquifer. This well was intended to supplement the existing ground water monitoring program, and help better determine the direction of ground water flow. Essex proposed that this monitoring well be sampled and analyzed for VO+15 and BN+15.

In the Response Document, the NJDEP requested the results of the At-Risk Sampling, additional documentation on the Hazardous Waste Drum Storage Area, information regarding the soil disturbance in the unpaved area to the west, and information on the white material observed in this area. This information was provided in the Supplemental Sampling Plan (Part I, Item 7e, and Part 2 Item 8). The NJDEP also requested that shallow monitoring well MW-2S be installed immediately downgradient (to the west) of the Hazardous Waste Drum Storage Area.

In the Supplemental Sampling Plan, Essex explained that this area is used to temporarily store empty drums which contained raw materials used in the manufacturing processes. The origin of the stained soils is unknown. Essex proposed a shallow monitoring well, SMW-4S, near the northwest (downgradient) end of the storage area, and proposed that the ground water from this well be sampled and analyzed for TPH, VO+15, and BN+15. Essex also proposed that a surface soil sample, SS-8, be collected and analyzed for TPH, VO+15, and BN+15.

In the Conditional Approval Letter, the NJDEP requested that an additional soil sample be collected at a depth of 18"-24" at location SS-8, and that the soil sample be analyzed for VO+15.

2.2.5: Area 5 - Filter Burn Area

In the Response Document, the NJDEP requested an explanation of the activities at the Filter Burn area, and an appropriate sampling proposal.

In the Supplemental Sampling Plan Essex explained that metal filters containing urethane sealant were cleaned in this area by burning, and that the black staining in this area was believed to be residual carbon from the filter burning process. (Note: This filter cleaning method is no longer practiced.) Essex proposed that a surface soil sample, SS-7, be collected from the Filter Burn area, and analyzed for BN+15.

In the Conditional Approval Letter, the NJDEP requested that an additional soil sample be collected at a depth of 18"-24" at location SS-7, and that the soil sample be analyzed for VO+15 in addition to BN+15.

2.2.6: Area 6 - Former NJPDES discharge point

In the Response Document, the NJDEP requested that Essex document a hole located in the bank of Burt's Creek that was observed during a site inspection, and provide a follow-up proposal.

In the Supplemental Sampling Plan, Essex explained that the hole in the bank is the location of former NJPDES discharge point #001, and that this discharge was taken out of service in late 1983/early 1984. Essex proposed that sediment sample SS-12 be collected from the bank of Burt's Creek at this location, and analyzed for TPH, VO+15, and BN+15.

2.2.7: Area 7 - Kneader Extruder Hot Oil Heater

In the Response Document, the NJDEP requested an explanation of the Kneader Extruder Hot Oil Heater Area, and a proposal to address soil staining in this area.

In the Supplemental Sampling Plan, Essex explained that the Kneader Extruder Hot Oil Heater is used to heat heavy naphenic oil used in the manufacturing process, and that the oil staining in this area may have been caused by oil used in the operation of this equipment. Essex proposed that a soil sample, SS-10, be collected in this area and analyzed for TPH, and BN+15.

2.2.8: Area 8 - Steam Condensate Drain

In the Response Document, the NJDEP requested information on the unidentified drain pipe that receives steam condensate outside of the "hot box".

In the Supplemental Sampling Plan, Essex explained that this drain pipe discharges into the spill prevention/sewer drain system.

In the Conditional Approval Letter, the NJDEP suggested that this steam discharge appeared to be discharging directly into the ground, and requested that the discharge, if discharging directly to the ground, be immediately ceased or properly permitted. In addition, the NJDEP requested that Essex sample the soil from a depth of 6"-12" (under the discharge point), and analyze the sample for BN+15 and Priority Pollutant Metals.

Additional information concerning the configuration of the Steam Condensate Drain area was obtained during Field Sampling, and from discussions with facility officials. In order to obtain a soil sample, several inches of concrete paving were removed from an approximately 1.5 square foot area adjacent to the Steam Condensate Drain Area (see Figure 2-2). This excavation revealed that 6 separate metal drain pipes were entering an 8" diameter asphalt/fiber conduit, which led to the storm sewer. Since it was impossible to sample below this conduit without removing all of the drain pipes, a sample, SS-13, was collected from the soil at a 0"-2" depth surrounding the conduit.

2.2.9: Area 9 - Spill Prevention/Sewer Drains

In the Original Sampling Plan, Essex reviewed the Spill Prevention/Sewer Drain system and proposed that one water sample (W-2), and two sediment samples (S-1 and S-2) be collected from each drain, and analyzed for TPH and BN+15.

In the Response Document, the NJDEP recommended sediment sampling for all drains.

In the Supplemental Sampling Plan, Essex proposed collecting a sediment sample (S-1, S-2, SS-3, SS-4, SS-5, and SS-6) and a water sample (SW-1, SW-2, SW-3, SW-4, SW-5, and SW-6) from six Spill Prevention/Sewer Drains at the facility, and analyzing these samples for TPH, VO+15, and BN+15. (Note: During a subsequent site review, an additional Spill Prevention/Sewer Drain was discovered near the southwest corner of the manufacturing building. An additional sediment sample SS-11, and water sample SW-11, were then added to the sampling and analysis list.)

In the Conditional Approval Letter, the NJDEP approved the proposed sampling for the Spill Prevention/Sewer Drains and recommended that the drains be cleaned out, and the integrity of each drain documented, through visual inspection and photographs.

The Spill Prevention/Storm Drains are components of a system designed to transport water through an oil/water separator and then offsite, and are not intended to permanently hold water or sediment. At any given moment, a particular drain may or may not contain water or sediment. The Field Sampling was performed on the afternoon of 7 March 1990, immediately following a morning of mixed rain and snow and several days of occasional showers, in an effort to obtain the maximum volume of water and sediment. Little or no water was present in three of the drains, and water samples W-1, SW-5, and SW-6 were not collected. Little or no sediment was present in two of the drains, and sediment samples S-1 and SS-4 were not collected. Enough water and sediment samples were collected and analyzed in the remaining drains to accurately assess the Spill Prevention/Storm Drain system. The results of the sample

analysis and an inspection of each drain is provided in Section 5.1.9.

2.2.10: Area 10 - Shipping Door Area

During a November 1988 pre-ECRA site inspection, ERM noticed an area of dark colored soil in the unpaved area adjacent to the door to the shipping area on the west side of the manufacturing building. Due to the small size of the colored soil area, At-Risk Sampling and remediation were performed in January 1989. After approximately 6" of soil was removed, a post-excavational soil sample, P-1, was collected and analyzed for TPH and BN+15. No significant amounts of TPH or BN+15 compounds were present in soil sample P-1.

In the Response Document, the NJDEP requested the results of the At-Risk Sampling. This information was provided in the Supplemental Sampling Plan (Attachment 3).

2.2.11: Area 11 - Transformer

In the Response Document, the NJDEP requested documentation of the history and presence or absence of PCBs in the electrical transformer located adjacent to the west side of the manufacturing building. In Section II, Item 11 of the Supplemental Sampling Plan, Essex provided information on the transformer ownership and PCB content. In the Conditional Approval Letter, the NJDEP stated that no further action would be required in this area, since no physical signs of transformer leakage were observed.

2.2.12: Area 12 - Concrete Diked Storage Areas

In the Response Document, the NJDEP requested documentation of all the historical drum/tank hazardous waste

or substance storage areas. Some of this information is provided in Sections 2.2.1, 2.2.2, 2.2.3, 2.2.4 of this report. Additional information on concrete diked hazardous material storage areas was provided in Part I, Item 7 of the Supplemental Sampling Plan. No additional information has been requested.

2.2.13: Area 13 - Metal Cuttings Area

In the Response Document, the NJDEP requested information on the source and composition of fine metallic-like powder at the facility. In the Supplemental Sampling Plan, Essex stated that this material was metal shavings from a temporary pipe cutting and threading operation. No additional information has been requested.

sample was collected last. Samples were transferred directly into sample jars. Each sample was screened with an Organic Vapor Analyzer (OVA). Sampling equipment was decontaminated between samples using the decontamination procedures outlined in Section 3.3.1.

3.2 Ground Water Investigation

3.2.1 Well Drilling, Construction, and Development Methods

A total of eight ground water monitoring wells were installed at the facility during the Phase I Sampling investigation. Five wells were screened in the shallow aquifer and three wells were screened in the deep aquifer, below a clay confining layer. Because of scheduling problems, and in order to expedite the well installation, two drilling subcontractors were used.

From 5 to 7 March 1990, Summit Drilling Company, Inc. of Bridgewater, New Jersey installed five shallow ground water monitoring wells at the facility (MW-1S, MW-2S, SMW-3S, SMW-4S, and SMW-1AS). A truck-mounted drill rig equipped with hollow stem auger flights was used to drill and install all monitoring wells. Continuous 2-foot length split-spoon samples were collected from MW-1S, MW-2S, SMW-3S, and described by the supervising ERM geologist. Split-spoon samples could not be taken in SMW-4S and SMW-1AS due to overhead wires, and at these wells, cuttings were described by the supervising ERM geologist. All wells were screened with an OVA, and drilling oversight was provided by a New Jersey Licensed Driller.

The five shallow monitoring wells were constructed of four-inch diameter Schedule 40 flush-threaded PVC riser and 0.20-slot screen. The well total depths ranged from 7 feet to 10 feet, with from 5 feet to 7 feet of screen. A Number 2 sand pack was placed around each screen and extended 0.5 feet to 1.0 feet above the top of the screen, depending upon distance to the ground surface. A 0.5 foot to one foot thick bentonite pellet seal was placed on top of the sand pack, and the

Table 3-1
Essex Sayreville Facility
Monitoring Well Sampling Information

WELL	DIAMETER	DEPTH	TIME PURGED	DTW BEFORE PURGING	PURGE METHOD	PURGE VOLUME	DTW AFTER PURGING	DTW BEFORE SAMPLING	SAMPLING TIME	SAMPLING METHOD
MW-1S	4"	8'	13:25	2.87'	BAILER	9 gal.	DRY	3.05'	10:40	BAILER
MW-1D	4"	36'	13:20	7.00'	PUMP	56 gal.	DRY	7.10'	10:15	BAILER
MW-2S	4"	7'	12:45	0.26'	BAILER	10 gal.	DRY	0.82'	09:20	BAILER
SMW-3S	4"	8'	12:55	4.05'	BAILER	8 gal.	DRY	4.38'	10:00	BAILER
SMW-4S	4"	10'	14:15	0.95'	BAILER	17 gal.	DRY	1.00'	11:10	BAILER
SMW-107D	4"	26.4'	16:20	6.73'	PUMP	39 gal.	17.25'	6.56'	12:15	BAILER
SMW-1AS	4"	7'	13:45	0.21'	BAILER	7 gal.	DRY	0.80'	11:15	BAILER
SMW-1AD	4"	38'	14:00	0.41'	PUMP	72 gal.	0.41'	0.61'	11:20	BAILER
OW-2S	3"	12'	15:40	3.89'	BAILER	9 gal.	4.89'	4.10'	12:05	BAILER
OW-3S	3"	12'	15:15	5.30'	BAILER	8 gal.	5.95'	5.63'	13:35	BAILER
OW-3D	3"	25.5'	15:15	4.91'	PUMP	22 gal.	11.00'	5.13'	13:40	BAILER
OW-4S	3"	15'	15:00	6.00'	BAILER	10 gal.	9.05'	7.17'	14:00	BAILER
OW-4D	3"	26'	14:50	6.77'	PUMP	20 gal.	7.85'	9.98'	14:10	BAILER
OW-106S	1.5"	est. 7	16:30	1.00'	BAILER	1.5 gal.	2.63'	1.08'	12:45	BAILER
OW-106D	2"	est. 17	16:35	1.80'	BAILER	7 gal.	1.82'	1.79'	12:50	BAILER
OW-107S	2"	est. 13	16:25	5.33'	BAILER	4 gal.	5.59'	5.46'	12:25	BAILER
OW-111S	2"	est. 9	15:40	2.34'	BAILER	2 gal.	DRY	2.66'	11:40	BAILER
OW-111D	2"	est. 21	15:45	1.43'	BAILER	9 gal.	10.09'	1.64'	11:45	BAILER

NOTES: All wells purged on 4/4/90
All wells sampled on 4/5/90.

ATTACHMENT



Ref. NO. 4 P 298

remainder of the borehole annulus was tremie-grouted to the ground surface with a bentonite/cement slurry.

From 12 to 16 March 1990, Hardin-Huber, Inc. of Crofton Maryland installed three deep ground water monitoring wells at the facility (MW-1D, SMW-107D, and SMW-1AS). Two truck-mounted drill rigs equipped with hollow stem auger and mud rotary equipment were used to drill and install all wells, to expedite well installation. Continuous 2-foot length split-spoon samples were collected from MW-1D and SMW-107D, and described by the field geologist. Split-spoon samples could not be taken at SMW-1AD due to overhead wires, and at this well, drill cuttings were described by the field geologist. All wells were screened with an OVA, and drilling oversight was provided by New Jersey Licensed Drillers.

In each of the three deep wells, 8-inch steel casing was set 0.5 to 1.0 feet into the top of the clay confining layer and grouted to the surface, to protect the shallow aquifer. The depth to the clay layer was determined from correlations with existing soil borings at the facility. An 8-inch hole was then drilled through the protective casing, and the deep wells were constructed of four-inch diameter Schedule 40 flush-threaded PVC riser and 0.20-slot screen. A Number 2 sand pack was placed around each screen, and extended 1 to 2 feet above the top of the screen. A one-foot thick bentonite pellet seal was placed on top of the sand pack, and the remainder of the borehole annulus was tremie-grouted to the ground surface with a bentonite/cement slurry.

Each well was completed with a locking protective stick-up steel casing or flush mount. NJDEP Monitoring Well Certification Forms A and B, which include the well construction specifications are provided in Attachment D.

Monitoring well development was performed by Summit, Hardin-Huber, and ERM technicians, using a combination of bailing, pumping, and air lift methods. Development was monitored by a field geologist, and was considered complete when the well exhibited a stable pH, temperature, and specific conductance.

3.2.2 Ground Water Sampling

Ground water monitoring well purging and sampling was performed by ERM on 4-5 April, 1989. A total of 18 wells were sampled, which included 8 wells installed as part of the Phase 1 Sampling Plan, and 10 preexisting wells. A summary of monitoring well purging and sampling information is provided in Table 3-1. The wells were purged using a dedicated, decontaminated PVC bailer, or a Tanaka centrifugal pump that was decontaminated before and between each use. Depth to water measurements were taken before and after each well was purged. Wells were purged until three volumes of water were removed, or until the well went dry.

Each sample was collected using a dedicated, decontaminated PVC bailer. Dedicated PVC bailers were used to prevent cross-contamination between wells. Prior to sampling, depth to water measurements were taken at each monitoring well.

3.2.3 Surveying

The 8 monitoring wells installed as part of the Supplemental Sampling Plan were surveyed for vertical and horizontal control by James M. Stewart Land Surveyors, Inc., of Philadelphia, Pennsylvania, a New Jersey-licensed surveyor. The 10 preexisting monitoring wells on-site had been previously surveyed. All monitoring well locations are plotted on Plate 2.

3.2.4 Synoptic Water Level Surveys

Synoptic water level measurements were collected from all newly installed wells and existing monitoring wells on 4 April 1990, prior to purging, and again on 7 May 1990. Each round of depth to water measurements was accomplished using a depth to water meter and measuring tape.

results, additional samples were collected by ERM and submitted to the laboratory for analysis.

Duplicate ground water and soil samples were collected and sent blind to the laboratory under fictitious sample designations. A blind duplicate sample was collected every 20 samples. Soil and ground water duplicate samples are listed with the results of analytical data in Attachment E.

To provide assurance that contamination was not introduced into the samples as a result of sample handling, storage, or shipment, travel blanks were prepared daily. Sterilized, oven-baked sand was used for soil and sediment samples, and deionized water was used for water samples. Travel blanks were submitted with each daily sample shipment.

To verify that field decontamination procedures were adequate, field blanks were also collected for laboratory analysis. Sterilized, oven-baked sand or deionized water was poured through the decontaminated sampling equipment and into appropriate containers.

As was the case with the blind duplicate samples, Matrix Spike (MS) and Matrix Spike Duplicate (MSD) samples were collected at a frequency of one in 20 samples.

3.3.3 NJDEP - Certified Laboratory Analyses

Intech Biolabs of East Brunswick, New Jersey performed all aqueous and solid sample analyses. The laboratory followed standard Tier IIb procedures and analyzed one Matrix Spike, one Matrix Spike Duplicate and one Method Blank sample for every 20 samples analyses for each analytical parameter. All samples were analyzed according to the USEPA-approved analytical methods summarized in Table 3-2. In addition, the laboratory provided the analytical results in a NJDEP Tier IIb data package format with the following deliverables: cover page, field and internal chains of custody forms, traffic report forms, laboratory chronicle, analytical results, raw analysis data (instrument printouts), QA/QC summaries, and travel and method blank results.

TABLE 3-2
Essex Sayreville Facility
U.S.E.P.A.-Approved Analytical Methods

<u>Parameter</u>	<u>Solid Matrix</u>	<u>Aqueous Matrix</u>
Total Petroleum Hydrocarbons (TPH)	EPA 418.1	EPA 418.1
Volatile Organic Compounds (VO+15)	SW-846 8240	SW-846 8240
Base Neutral-Extractable Organic Compounds (BN+15)	SW-846 8270	SW-846 8270
Priority Pollutant Metals	SW-846 6010	N/A
(N/A = not analyzed)		

ATTACHMENT

V-30



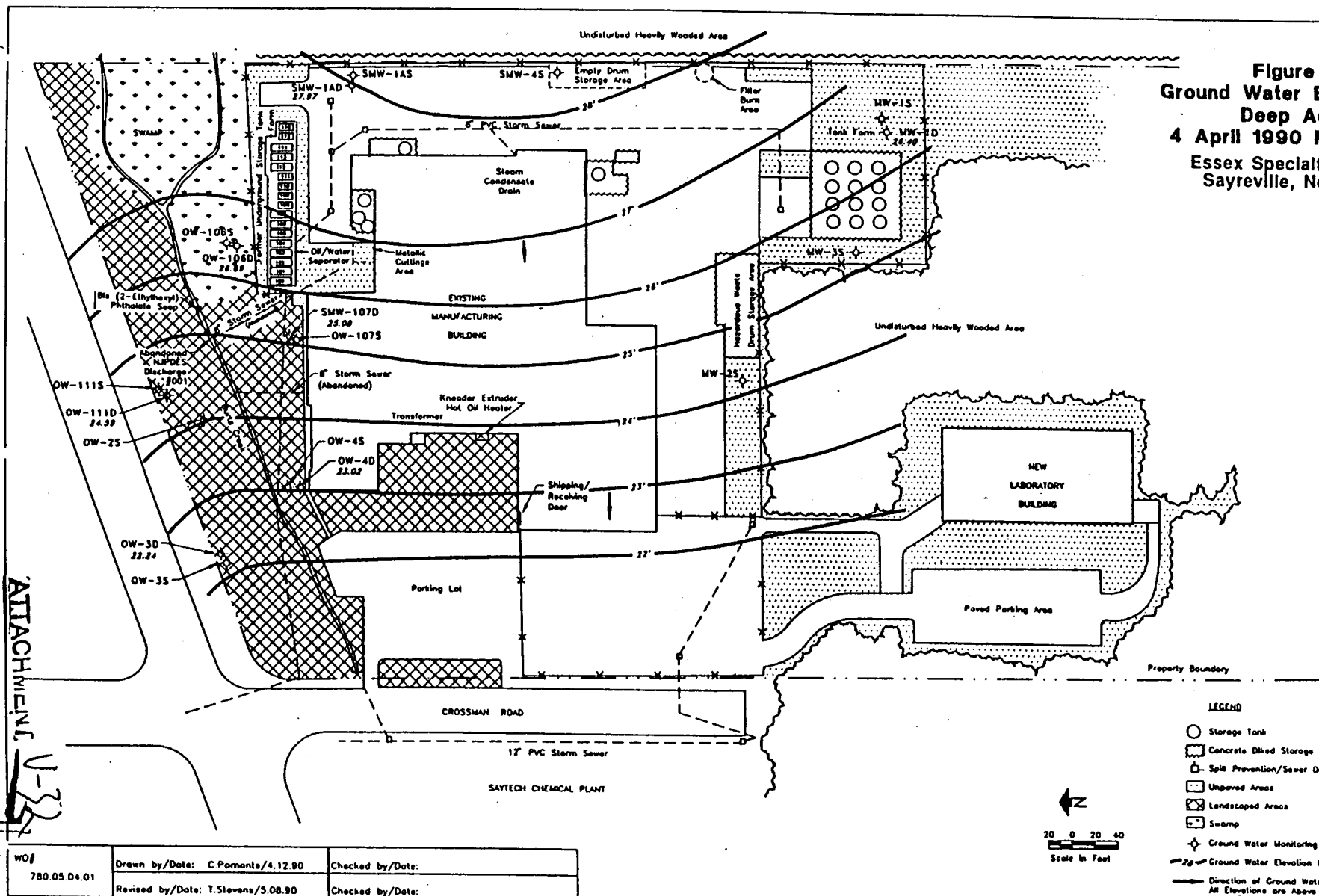
Ref. No. 4 p. 302

The analyses for VOCs and BNs included library searches to tentatively identify 15 non-targeted organic compounds for each analysis.

3.3.4 ERM Data Validation

As part of ERM's quality assurance program, an experienced QA/QC chemist reviewed the data packages provided by the laboratory to evaluate the analytical results with respect to accuracy in field sampling, as well as laboratory analysis and reporting results. The results of the ERM data validation are presented in Attachment E.

Figure 4-2
Ground Water Elevation Map
Deep Aquifer
4 April 1990 Measurement
Essex Specialty Products
Sayreville, New Jersey



WOJ 780.05.04.01	Drawn by/Date: C.Pomato/4.12.90	Checked by/Date:
	Revised by/Date: T.Slevens/5.08.90	Checked by/Date:

SECTION 4

HYDROGEOLOGY

4.1 Regional Hydrogeology

The facility lies within the Atlantic Coastal Plain physiographic province, approximately 4,000 feet south of the Raritan River. Streams and marshes in this area drain westward and northward toward the Raritan River, which flows northeastward into Raritan Bay. The United States Geologic Survey 7.5 Minute Topographic Map for this area (see Figure 1-1) and survey data indicate that the ground surface elevation at the facility is between 20 and 35 feet above sea level. The ground surface of the facility slopes very gently (less than 1 degree dip) from southeast to northwest.

The Sayreville area is underlain by the outcrop belt of a wedge of southeast-dipping and thickening unconsolidated sediments known collectively as the Potomac-Raritan-Magothy (P-R-M) Formation of Late Cretaceous age (Zapeczka, 1984). The Old Bridge and Farrington aquifers, which are part of the P-R-M Formation, are known to crop out in the Sayreville area.

4.2 Site Specific Hydrogeology

4.2.1 Subsurface Lithology

During previous investigations, it was determined that the shallow stratigraphy (surface to 40 feet) beneath the Sayreville facility generally consists of two sand aquifers separated by a clay layer which consists of clay, silty clay, and clayey silts. In the Supplemental Sampling Plan (Part II, Item 14; Table 4;

Attachments 10 and 14). Essex provided documentation demonstrating the depth, thickness, and continuity of the clay layer beneath the northern end of the facility. Cross-section A-A' (see Plate 3) demonstrates that the stratigraphy along the north end of the facility is continuous to the south end of the facility.

The shallow sand aquifer extends from the surface to a depth of 7 feet at the south end of the facility to 17 feet at the north end of the facility. The lithology generally consists of light tan to light grey fine to medium grained sand. The upper one to three feet of the aquifer often contains orange and brown colored layers, with occasional roots and other organic material. The depth to the water table ranges from less than one foot to about three feet.

There is evidence that some portion of the shallow aquifer is fill material. A 1964 pre-construction soil and foundation study by Woodward-Clyde-Sherard & Associates indicated that two to seven feet of fill needed to be added to support the shallow spread foundation footings of the facility (see Attachment 14 of the Supplemental Sampling Plan).

The clay layer underlies the shallow aquifer and ranges from about 3 feet thick at the north end of the facility to 20 feet thick at the south end of the facility. The color of this unit ranges from white to light grey to dark grey, and there is abundant gravel in the upper portion of the unit. The contact between the shallow aquifer and the underlying clay layer is sharp, while the contact between the clay layer and the underlying deep aquifer is gradational.

The deep aquifer consists of fine to medium grained sands which vary in color from light tan to pink to grey to brown, with occasional layers of silt and clay. The total thickness of this aquifer is unknown.

4.2.2 Ground Water Elevation

Water level measurements collected from the 18 monitoring wells on 4 April 1990 and 7 May 1990 are summarized in Table 4-1. Ground water elevations relative to mean sea level are plotted for the shallow and deep aquifers for the April and May measurement events in Figures 4-1, 4-2, 4-3, and 4-4.

The ground water elevation maps for the shallow aquifer (Figures 4-1 and 4-3) indicate that shallow ground water flow is influenced by Burt's Creek. Shallow ground water flow is from southeast to northwest under most of the facility, and becomes more east to west adjacent to Burt's Creek. North of Burt's Creek, the shallow ground water flow direction is generally to the south toward Burt's Creek.

The ground water elevation maps for the deep aquifer (Figures 4-2 and 4-4) indicate that the ground water flow direction is generally from east to west. This flow direction is consistent with the dip of the ground surface (see Figure 1-1).

4-3

ATTACHMENT



Ref. NO. 4 p. 307

Table 4-1

**Essex Sayreville Facility
Monitoring Well Elevations and
Depth to Water Measurements**

Well #	Elevations (in feet MSL)			Depth to Water from Top of Inner Casing (feet)		Water Elevation in feet above MSL	
	Ground	PVC Inner Casing	Outer Casing	4/4/90	5/7/90	4/4/90	5/7/90
MW-1S	31.23	33.17	33.64	2.87	3.10	30.30	30.07
MW-1D	31.21	33.40	33.76	7.00	7.14	26.40	26.26
MW-2S	26.58	26.30	26.75	0.26	0.77	26.04	25.53
SMW-3S	30.93	32.85	33.35	4.05	4.55	28.80	28.30
SMW-4S	29.94	29.66	29.95	0.95	1.05	28.71	28.61
SMW-107D	29.71	31.81	32.06	6.73	6.64	25.08	25.17
SMW-1AS	28.99	28.53	28.99	0.21	0.33	28.32	28.20
SMW-1AD	28.85	28.38	28.97	0.41	0.49	27.97	27.89
OW-2S	NA	27.74	24.97	3.89	4.33	23.85	23.41
OW-3S	NA	27.11	24.42	5.30	5.88	21.81	21.23
OW-3D	NA	27.15	24.25	4.91	5.34	22.24	21.81
OW-4S	NA	29.93	27.18	6.00	7.34	23.93	22.59
OW-4D	NA	29.79	26.84	6.77	7.15	23.02	22.64
OW-106S	NA	26.53	NA	1.00	1.12	25.53	25.41
OW-106D	NA	28.79	NA	1.80	1.86	26.99	26.93
OW-107S	NA	30.86	NA	5.33	5.50	25.53	25.36
OW-111S	NA	27.03	NA	2.34	2.96	24.69	24.07
OW-111D	NA	25.97	NA	1.43	1.82	24.54	24.15

MSL = Mean Sea Level

NA = Not Available

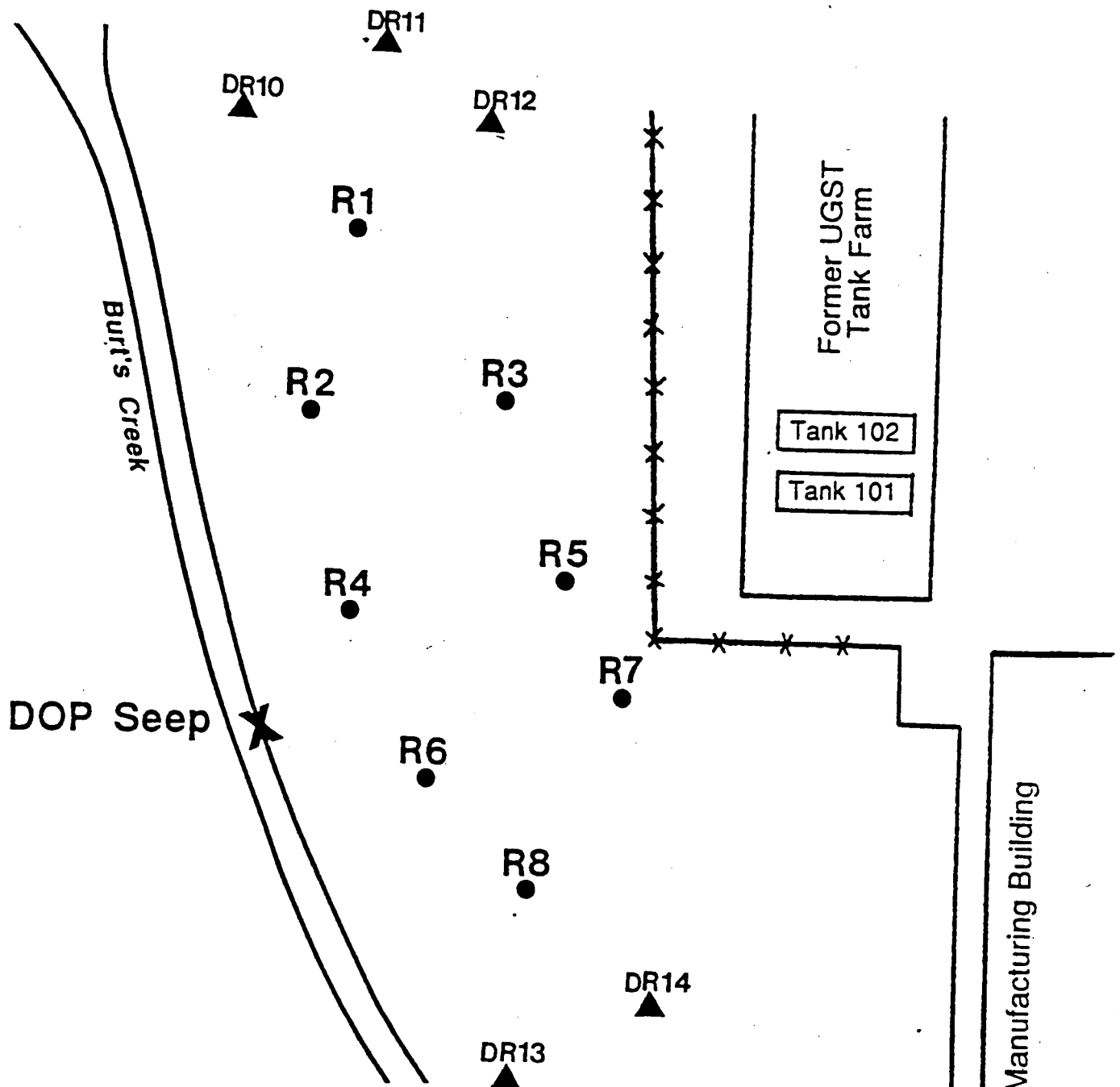
ATTACHMENT

V-36



Ref. No. 4 p. 308

December 1989 Additional Soil Sample Locations Essex Sayreville Facility



Legend

- October 1989 Soil Sample Location
- ▲ December 1989 Soil Sample Location
- ▲ Location of DR11 is not as shown;
DR11 is located 120 ft east of its
depicted location

SCALE IN FEET

780-05-04

Drawn by/Date: GNS 5/8/90

Checked by/Date: PLS 5/9/90

Revised by/Date:

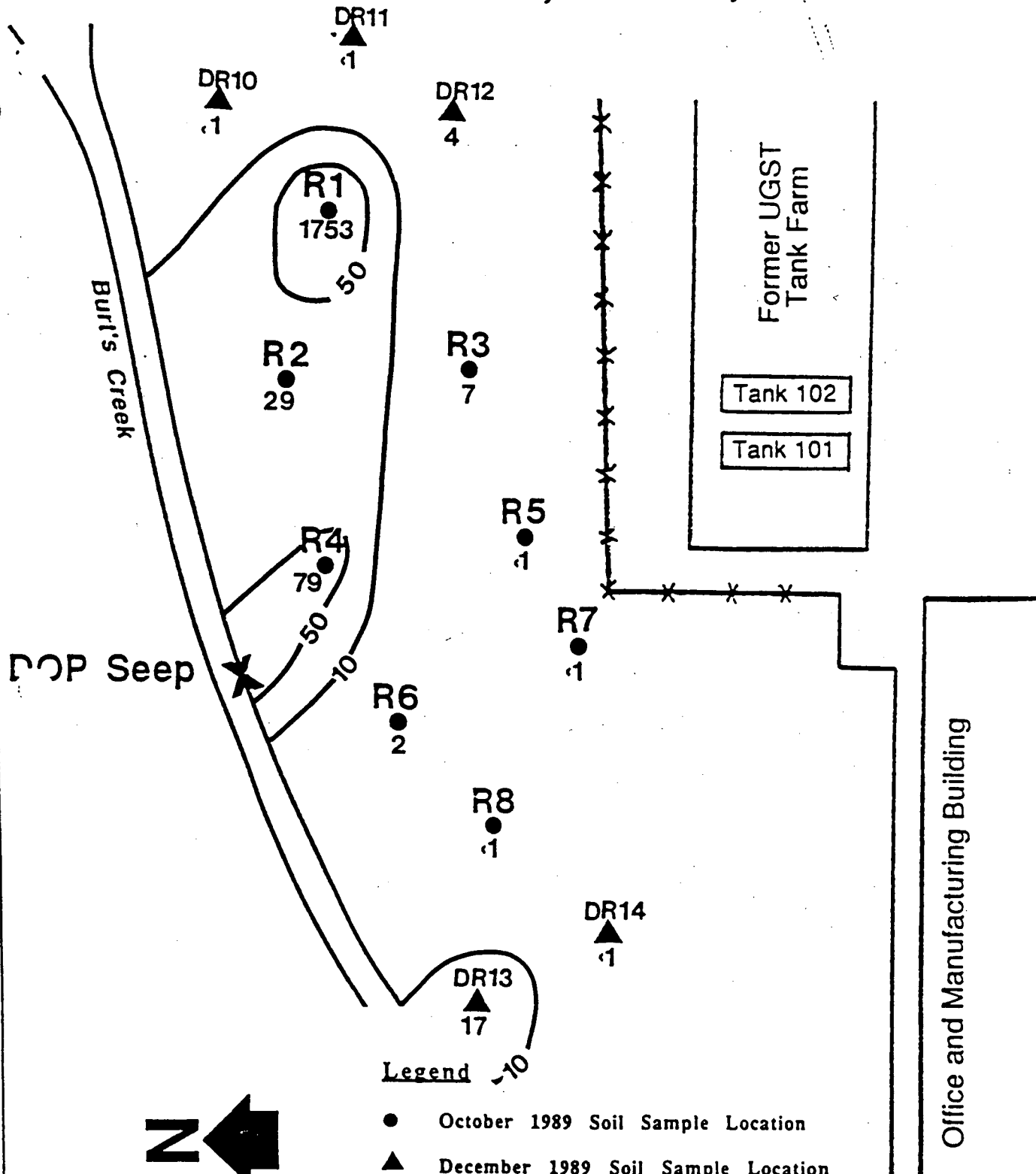
Checked by/Date:



ATTACHMENT V-37

Ref. No. 4 p. 309

October and December 1989- 0'- 1' Soil-Samples
Essex Sayreville Facility



Legend

- October 1989 Soil Sample Location
- ▲ December 1989 Soil Sample Location
- ▲ Location of DR11 is not as shown;
DR11 is located 120 ft east of its
depicted location

SCALE IN FEET

All values are total base neutral
compounds in ppm.

ATTACHMENT *V-58*

WO#
780-05-04

Drawn by/Date: GNS 5/8/90

Checked by/Date: PLS 5/9/90

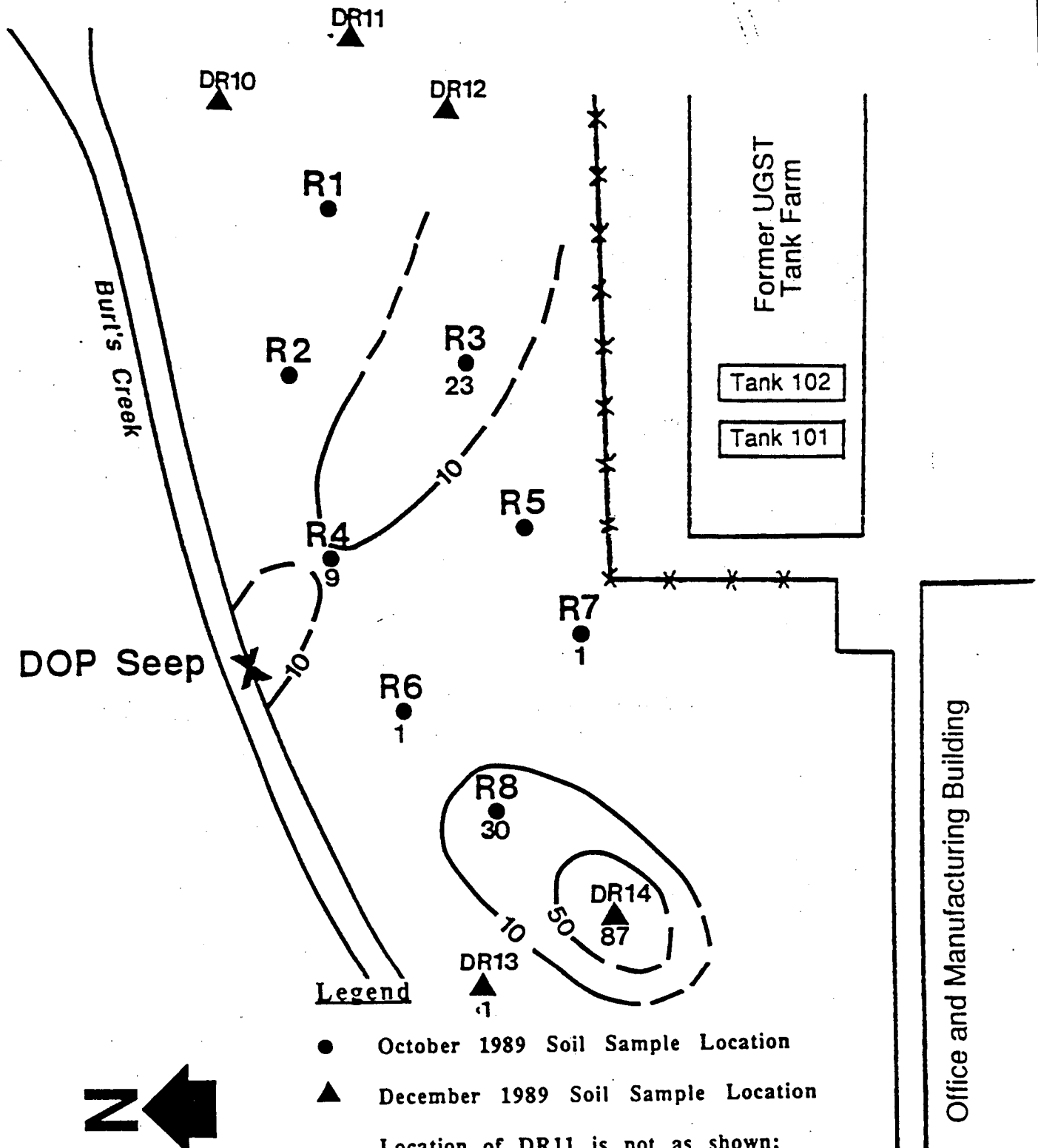
Revised by/Date:

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Ref. NO. 4 p. 310

October and December 1989- 2' - 3' Soil Samples
Essex Sayreville Facility



SCALE IN FEET

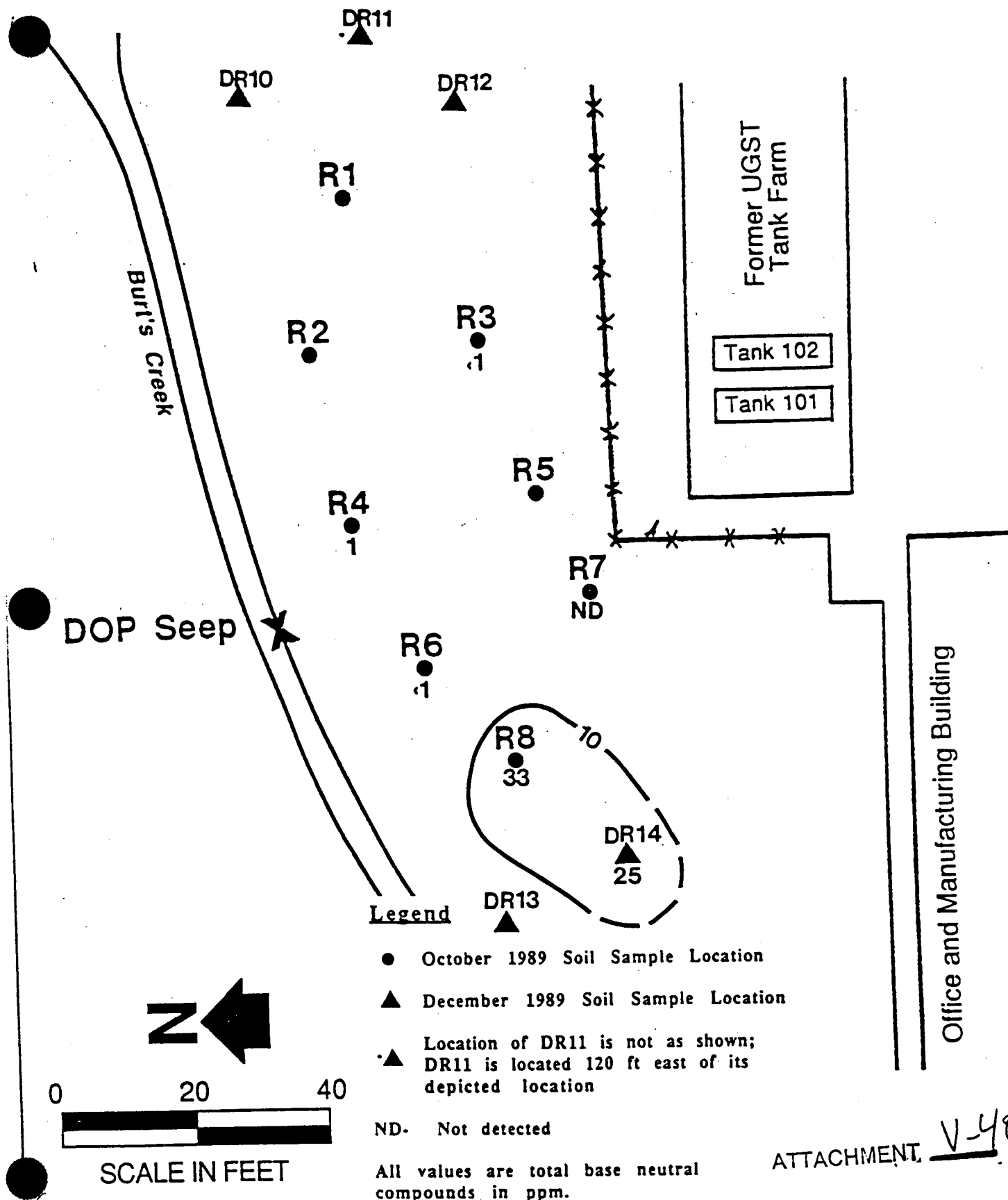
All values are total base neutral compounds in ppm.

ATTACHMENT V-39

WO# 780-05-04	Drawn by/Date: GNS 5/8/90	Checked by/Date: PLS 5/9/90	
	Revised by/Date:	Checked by/Date:	

Ref. No. 4 p. 311

Figure 3-8
October and December 1989- 4' - 4.5' Soil Samples
Essex Sayreville Facility



ATTACHMENT V-40

Ref. No. 4 p. 312

TABLE 1-1
Dow-Sayerville
October 1989 Soil Samples
Summary of Sample Data Reviewed

ERM Traffic Number	Sample Location	Sample Date	Analyses Performed	Laboratory I.D.
15633	R-1A	10/27/89	Moisture, Base Neutrals	04687
15634	R-2A	10/27/89	Moisture, Base Neutrals	04688
15635	R-3A	10/27/89	Moisture, Base Neutrals	04689
15636	R-3B	10/27/89	Moisture, Base Neutrals	46890
15637	R-3C	10/27/89	Moisture, Base Neutrals	04691
15638	R-4A	10/27/89	Moisture, Base Neutrals	04692
15639	R-4B	10/27/89	Moisture, Base Neutrals	04693
15640	R-4C	10/27/89	Moisture, Base Neutrals	04694
15641	R-5A	10/27/89	Moisture, Base Neutrals	04695
15642	R-5B	10/27/89	Moisture, Base Neutrals	04696
15643	R-6A	10/27/89	Moisture, Base Neutrals	04697
15644	R-6B	10/27/89	Moisture, Base Neutrals	04698
15645	R-6C	10/27/89	Moisture, Base Neutrals	04699
15646	R-8A	10/27/89	Moisture, Base Neutrals	04700
15647	R-8B	10/27/89	Moisture, Base Neutrals	04701
15648	R-8C	10/27/89	Moisture, Base Neutrals	04702
15649	R-7A	10/27/89	Moisture, Base Neutrals	04703
15650	R-7B	10/27/89	Moisture, Base Neutrals	04704
15651	R-7C	10/27/89	Moisture, Base Neutrals	04705
15652	R-7A DUP	10/27/89	Moisture, Base Neutrals	04706
15653	R-9A	10/27/89	Moisture, Base Neutrals	04707
15654	EB-1	10/27/89	Moisture, Base Neutrals	04708
	(Equipment Blank)			
15655	TB-1	10/27/89	Moisture, Base Neutrals	04709
	(Blind Travel Blank)			

ATTACHMENT

V-41



Ref. No. 4 p. 33

TABLE 1-2
Dow-Sayerville
December 1989 Soil Samples
Summary of Sample Data Reviewed

ERM Traffic Number	Sample Location	Sample Date	Analyses Performed	Laboratory I.D.
24749	DTB-2 (Blind Travel Blank)	12/7/89	Volatiles	05601
24750	DEB-2 (Equipment Blank)	12/7/89	Base Neutrals	05602
	DR-10	12/7/89	Moisture, Base Neutrals	05603
24751	DR-11	12/7/89	Moisture, Base Neutrals	05604
24752	DR-12	12/7/89	Moisture, Base Neutrals	05605
24765	DR-13A	12/7/89	Moisture, Base Neutrals	05606
24766	DR-13A MS/MSD	12/7/89	Moisture, Base Neutrals	05607
24754	DR-13B	12/7/89	Moisture, Base Neutrals	05608
24761	DR-14A	12/7/89	Moisture, Base Neutrals	05609
24763	DR-14B	12/7/89	Moisture, Base Neutrals	05610
24764	DR-14C	12/7/89	Moisture, Base Neutrals	05611
24762	DR-15A (Blind duplicate of DR-14A)	12/7/89	Moisture, Base Neutrals	05612

SECTION 2 ORGANIC DATA

The organic analyses of twenty-one soil samples, one travel blank and one equipment blank collected on 27 October 1989, and eight soil samples, one travel blank, one equipment blank, and one blind duplicate sample collected on 7 December 1989 were performed by Intech Biolabs of East Brunswick, New Jersey. Thirty-three samples were analyzed for base-neutral extractables by USEPA Method 8270. Mass spectral library searches were performed for up to fifteen base-neutral spectra whose characteristics did not match the target compound spectra. In addition, a travel blank shipped with the 7 December 1989 samples was analyzed for volatile organic compounds by USEPA Method 8240.

The findings offered in this report are based upon a detailed review of the following criteria reported according to the New Jersey Department of Environmental Protection Tier II deliverables format: holding times, blank analyses, surrogate compound recoveries, matrix spike recoveries, duplicate analyses, bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP) mass tuning results, initial and continuing calibration data, quantitation of results, and qualitative mass spectral interpretation.

The organic analyses were performed acceptably, but require a few qualifying statements. It is recommended that the data only be used according to the qualifying statements presented below. Any data which are not qualified in this review should be considered qualitatively and quantitatively valid based on the criteria evaluated.

2.1 Data Qualifiers for 27 October 1989 Sample Results

- Laboratory results were reported with up to four significant figures in the numerical value. The numerical values reported by the laboratory have been rounded by ERM in accordance with USEPA CLP procedures, to contain two significant figures if the value is greater than ten, and one significant figure if the value is less than ten. These rounded values have been reported on the attached data summary tables.
- The positive result for bis(2-ethylhexyl) phthalate in soil sample R-4B should be considered a quantitative estimate because the concentration reported exceeded the calibrated range of the instrument. This has been indicated by placing a "J" qualifier next to the quantitative results on the data summary table.
- The laboratory incorrectly reported the total solids as 74% for soil sample R-7B. The raw laboratory data indicate that the correct value is 24%. This correct value has been placed on the data summary table.
- The laboratory did not provide the base-neutral dilution analysis results for soil samples R-1A, R-3B, R-4A, R-6B, R-8B, and R-8C in the original data package submission. This data was requested from the laboratory and incorporated into the data package.
- The laboratory inadvertently analyzed the sample submitted for site-specific matrix spiking analysis (R-7A MS, MSD) as an unspiked analysis. This analysis has been reported as R-7A DUP on the data summary table. Comparison of the results for R-7A and R-7A DUP indicates only trace

(estimated) concentration levels of base-neutral compounds are present, making it difficult to assess precision between the results. Bis (2-ethylhexyl) phthalate was detected in R-7A, but not R-7A DUP, and three polynuclear aromatic hydrocarbons were detected in R-7A DUP, but not R-7A. The combined results for these two samples should be used to assess contamination at location R-7A.

- All compounds which were qualitatively identified at a concentration below the method quantitation limits have been qualified with a "J" to indicate that they are quantitative estimates.
- All tentatively identified compounds (TICs) have been marked with a "J" qualifier to indicate that their levels are quantitative estimates. ERM has included on the data summary tables only those TICs which are demonstrated not to be the result of laboratory contamination or an instrument artifact.

2.2 Data Qualifiers for 7 December 1989 Sample Results

- Laboratory results were reported with up to four significant figures in the numerical value. The numerical values reported by the laboratory have been rounded by ERM in accordance with USEPA CLP procedures, to contain two significant figures if the value is greater than ten, and one significant figure if the value is less than ten. These rounded values have been reported on the attached data summary tables.
- The presence of di-n-butylphthalate in soil samples DR-14C and the blind duplicate of DR-14A (labelled DR-15A) is considered qualitatively invalid due to the level at which this

compound was present in the laboratory method and/or travel blanks. USEPA protocol requires that positive results for common contaminants, such as di-n-butylphthalate, that are less than or equal to ten times (10X) the method or travel blank contamination levels to be qualified as qualitatively invalid. This has been indicated by placing a "B" qualifier next to the reported quantitative results on the data summary table.

- The semivolatile extraction holding time for soil samples DR-14C and the blind duplicate of DR-14A (labelled DR-15A) exceeded the seven day extraction holding time mandated by 40 CFR Part 136 for aqueous samples by seven days. National guidelines currently recommend that this aqueous holding time criteria be applied to soil samples. Therefore, ERM evaluates soil sample holding times according to this aqueous criteria. Because the above samples were extracted outside the allowable holding time, the actual quantitation limits and/or positive results for these samples should be considered quantitative estimates and may be higher than reported. This has been indicated by placing a "J" qualifier next to the quantitative results on the sample data table.
- The positive results for bis(2-ethylhexyl)phthalate in soil samples DR-13A, DR-14B and DR-14C should be considered quantitative estimates because the concentration reported exceeded the calibrated range of the instrument. This has been indicated by placing a "J" qualifier next to the quantitative results on the sample data table.
- The blind duplicate sample analysis of DR-14A (labelled DR-15A) indicated that trace levels of several semivolatile compounds were detected above the method detection


limit. These compounds, except bis(2-ethylhexyl) phthalate, were not detected in the original sample, possibly because of sample inhomogeneity. Therefore, relative percent differences (RPD) were not calculated between the original sample results and the blind duplicate sample results. Since the semivolatile compounds were detected in the blind duplicate sample, they should be considered to be qualitatively present at similar concentrations at the DR-14A sample location.

- All compounds which were qualitatively identified at a concentration below the method quantitation limits have been qualified with a "J" to indicate that they are quantitative estimates.
- All tentatively identified compounds (TICs) have been marked with a "J" qualifier to indicate that their levels are quantitative estimates. ERM has included on the data summary tables only those TICs which are demonstrated not to be the result of laboratory contamination or an instrument artifact.

SECTION 3 SUMMARY

The analyses were performed acceptably, but required a few qualifying statements. This analytical quality assurance review and data validation has identified the aspects of the analytical data that have required qualifying statements. Support documentation containing specific details on this quality assurance review is filed with the Dow - Sayerville project.

Report Prepared By:



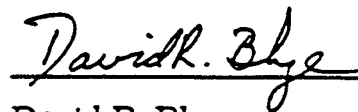
Jeffrey M. Lorrain

Quality Assurance Chemist

12/27/89

Date

Report Approved By:



David R. Blye

Quality Assurance Manager

2/15/90

Date

ATTACHMENT 1 METHODOLOGY SUMMARY

Analysis for Volatiles (8240)


The sample is purged with helium and the volatile compounds are collected on a Tenax/Silica gel trap. The trap is desorbed and the compounds flushed to the head of a packed column equipped in a gas chromatograph. Components are detected and quantified using a mass spectrometer.

Analysis for Base Neutrals (8270) (soil)

The sample is solvent extracted. The extract is concentrated and injected into a Gas Chromatograph equipped with a Mass Spectrometer. A fused silica capillary column provides separation of the semivolatile compounds.

Analysis for Moisture

A well-mixed sample is placed in a weighed beaker and dried to a constant weight in an oven at 103 to 105 C. The decrease in weight of the sample is the Moisture.

ATTACHMENT V-49 

Ref. 11.4 0.321

ATTACHMENT 2
METHOD REFERENCES

Analysis

References

Volatiles

USEPA SW-846 Test Methods for
Evaluating Solid Waste, Third
Edition Method 8240.

Base Neutrals
Extractables

USEPA, SW-846 Test Methods
for Evaluating Solid Waste, Third
Edition Method 8270.

Moisture

USEPA 600/4-79-020, Methods
for Chemical Analysis of Water and
Wastes, (March 1983). Method
160.3.

V-50
ATTACHMENT **ERM**

Ref. No. 4 p. 322

DOW-Sayerville
October 1989 Soil Sample Analysis Results
(all concentrations reported on a dry weight basis)

Page 1 of 3

Sample Location	R-1A	R-2A	R-3A	R-3B	R-3C	R-4A	R-4B	R-4C
Sample Date	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89
ERM Traffic Report No.	15633	15634	15635	15636	15637	15638	15639	15640
Laboratory I.D. No.	4687	4688	4689	4690	4691	4692	4693	4694
Concentration Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Total Solids (%)	22	21	83	82	72	84	79	77
Base Neutral Organic Compounds								
Fluoranthene	210 J	1800 J		55 J				
Pyrene	200 J	1800 J						
Bis(2-ethylhexyl) phthalate	1800000	1800 J	6500	22000	200 J	78000	8900 J	1100
Di-n-octyl phthalate	3100			300 J				
Aconaphthylene		300 J						
Phenanthrene		900 J						
Anthracene		190 J						
Benzo(a)anthracene		730 J						
Chrysene		1300 J						
Benzo(b)fluoranthene		1600 J						
Benzo(k)fluoranthene		360 J						
Benzo(a)pyrene		1100 J						
Indeno(1,2,3-cd)pyrene		800 J						
Benzo(g,h,i)perylene		820 J						
Di-n-butyl phthalate								
Base Neutral Tentatively Identified Compounds								
Total Unknowns	74000 J	67000 J	3800 J	81 J	22000 J	9800 J	26000 J	9400 J
Total Unknown Hydrocarbons	9700 J	3100 J		110 J	1900 J	1300 J		730 J
Total Unknown PCB's				3800 J				
Total Unknown Aromatic Hydrocarbons								

Qualifier Codes:

B - This result is qualitatively invalid since this compound was also detected in a blank at a similar concentration.

J - This result is a quantitative estimate.

NA - Not analyzed for this parameter.

ND - none detected.

Note - No concentration is entered for compounds which were not detected.

**APPROVED FOR
RELEASE BY
QUALITY ASSURANCE**

David R. Blye 2-15-90
QVCC MANAGER DATE

ATTACHMENT V-51

Ref. No. 4 P. 323

DOW-Sayerville
October 1989 Soil Sample Analysis Results
(all concentrations reported on a dry weight basis)

Page 2 of 3

Sample Location	R-5A	R-5B	R-6A	R-6B	R-6C	R-7A	R-7ADUP	R-7B
Sample Date	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89
ERM Traffic Report No.	15641	15642	15643	15644	15645	15649	15652	15650
Laboratory I.D. No.	4695	4696	4697	4698	4699	4703	4706	4704
Concentration Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Total Solids (%)	82	89	86	51	76	80	90	24
Base Neutral Organic Compounds								
Fluoranthene							180 J	
Pyrene							170 J	250 J
Bis(2-ethylhexyl) phthalate	210 J	1500	1800	410 J	230 J	320 J		
Di-n-octyl phthalate								
Acenaphthylene							170 J	640 J
Phenanthrene								
Anthracene								
Benzo(a)anthracene								
Chrysene								
Benzo(b)fluoranthene								
Benzo(k)fluoranthene				150 J				
Benzo(a)pyrene								
Indeno(1,2,3-cd)pyrene								
Benzo(g,h,i)perylene								
Di-n-butyl phthalate								
Base Neutral Tentatively Identified Compounds								
Total Unknowns	1300 J	1300 J	5900 J	23000 J	5300 J	370 J	150 J	
Total Unknown Hydrocarbons	600 J	74 J	540 J	44000 J	620 J	480 J		
Total Unknown PCB's								
Total Unknown Aromatic Hydrocarbons				26000 J	1600 J			

Qualifier Codes:

B - This result is qualitatively invalid since this compound was also detected in a blank at a similar concentration.

J - This result is a qualitative estimate.

NA - Not analyzed for this parameter.

ND - none detected.

Note - No concentration is entered for compounds which were not detected.

**APPROVED FOR
RELEASE BY
QUALITY ASSURANCE**

David R. Blye 2-15-90
QA/QC MANAGER DATE

ATTACHMENT

V-52

204 NO. 4 P. 324

DOW-Sayerville
October 1989 Soil Sample Analysis Results
 (all concentrations reported on a dry weight basis)

Page 3 of 3

Sample Location	R-7C	R-8A	R-8B	R-8C	R-9A	EB-1	TB-1
Sample Date	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89	10/27/89
ERM Traffic Report No.	15651	15646	15647	15648	15653	15654	15655
Laboratory I.D. No.	4705	4700	4701	4702	4707	4708	4709
Concentration Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/L	µg/L
Total Solids (%)	70	85	57	71	91	NA	NA
Base Neutral Organic Compounds	ND						
Fluoranthene					190 J		
Pyrene		82 J			140 J		
Bis(2-ethylhexyl) phthalate			29000	31000	310 J		
Di-n-octyl phthalate			310 J	1800			
Acenaphthylene		160 J					
Phenanthrene					94 J		
Anthracene							
Benzo(a)anthracene					110 J		
Chrysene					70 J		
Benzo(b)fluoranthene							
Benzo(k)fluoranthene					76 J		
Benzo(a)pyrene					86 J		
Indeno(1,2,3-cd)pyrene					140 J		
Benzo(g,h,i)perylene							
Di-n-butyl phthalate							
Base Neutral Tentatively Identified Compounds						ND	ND
Total Unknowns	3600 J	13000 J	16000 J	16000 J	370 J		
Total Unknown Hydrocarbons	170 J	1800 J	2200 J		510 J		
Total Unknown PCB's							
Total Unknown Aromatic Hydrocarbons	1200 J		15000 J	1900 J			

Qualifier Codes:

B - This result is qualitatively invalid since this compound was also detected in a blank at a similar concentration.

J - This result is a quantitative estimate.

NA - Not analyzed for this parameter.

ND - none detected.

Note - No concentration is entered for compounds which were not detected.

**APPROVED FOR
 RELEASE BY
 QUALITY ASSURANCE**

David R. Blye 2-15-90
 QA/QC MANAGER DATE

ATTACHMENT

V-53

Ref. No. 4 p. 325

DOW-Sayerville
December 1989 Soil Sample Analysis Results
 (all concentrations reported on a dry weight basis)

Page 1 of 2

Sample Location	DR-10	DR-11	DR-12	DR-13A	DR-13B	DR-14A
Sample Date	12/7/89	12/7/89	12/7/89	12/7/89	12/7/89	12/7/89
ERM Traffic Report No.	24753	24751	24752	24765	24754	24761
Laboratory I.D. No.	5603	5604	5605	5606	5608	5609
Concentration Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Total Solids (%)	13	78	15	35	70	87
Volatile Organic Compounds	NA	NA	NA	NA	NA	NA
Methylene Chloride						
Chloroform						
Base Neutral Organic Compounds						
Fluoranthene	260 J		740 J	160 J		
Benzo(a)pyrene	400 J		290 J			
Bis(2-ethylhexyl)phthalate		140 J	960 J	18000 J	55 J	270 J
Phenanthrene			450 J	170 J		
Pyrene			570 J	150 J		
Chrysene			360 J	100 J		
Benzo(b)fluoranthene			290 J			
Benzo(k)fluoranthene			340 J	110 J		
Acenaphthylene						
Fluorene						
Anthracene						
Butylbenzyl phthalate						
Benzo(a)anthracene						
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene						
Benzo(g,h,i)perylene						
Di-n-octyl phthalate						
Di-n-butyl phthalate						
Base Neutral Tentatively Identified Compounds						
Ethylbenzene					3200 J	
Dimethyl benzene isomer						
ethylmethyl benzene						
Cineole	11000 J		22000 J			
Total Unknowns	82100 J	2440 J	140800 J	57400 J	17430 J	4710 J
Total Unknown hydrocarbons	18700 J				700 J	420 J
D-Friedelaeian-14-en-3-one	8900 J		28000 J	2000 J	1300 J	460 J
naphthalene,1,2,3,4-tetrahydro-1,8-dimethyl-4-(1-methylethyl)			4800 J			
gamma sistrosterol			8500 J			
heptadecanoic acid				2900 J		
heptadecane				2100 J		
unknown Aldehyde				1100 J		190 J
trimethyl benzene isomer						

Qualifier Codes:
 B - This result is qualitatively invalid since this compound was also detected in a blank at a similar concentration.
 J - This result is a quantitative estimate.
 NA - Not analyzed for this parameter.
 ND - none detected.
 Note - No concentration is entered for compounds which were not detected.

**APPROVED FOR
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 QUALITY ASSURANCE**

David R. Blye 2-15-90

ATTACHMENT

Ref. No. 4 P. 320

V-574

DOW-Sayerville
December 1989 Soil Sample Analysis Results
 (all concentrations reported on a dry weight basis)

Page 2 of 2

Sample Location	DR-14B	DR-14C	DR-15A**	DTB-2	DEB-2	
Sample Date	12/7/89	12/7/89	12/7/89	12/7/89	12/7/89	
ERM Traffic Report No.	24783	24784	24782	24749	24750	
Laboratory I.D. No.	5810	5811	5812	5801	5802	
Concentration Units	µg/Kg	µg/Kg	µg/Kg	µg/L	µg/L	
Total Solids (%)	68	67	68	NA	NA	
Volatile Organic Compounds	NA	NA	NA		NA	
Methylene Chloride				12	B	
Chloroform				3	B	
Base Neutral Organic Compounds				NA	ND	
Fluoranthene	330	J	68	J		
Benzo(a)pyrene		280	J			
Bis(2-ethylhexyl)phthalate	84000	J	24000	J		
Phenanthrene	210	J	40	J		
Pyrene	270	J	58	J		
Chrysene	170	J	47	J		
Benzo(b)fluoranthene	120	J	42	J		
Benzo(k)fluoranthene	180	J	53	J		
Acenaphthylene						
Fluorene						
Anthracene						
Butylbenzyl phthalate		81	J			
Benzo(a)anthracene	87	J				
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene						
Benzo(g,h,i)perylene						
Di-n-octyl phthalate	1000	180	J			
Di-n-butyl phthalate		380	B	72	B	
Base Neutral Tentatively Identified Compounds				NA		
Ethylbenzene					6.4	J
Dimethyl benzene isomer		2000	J		38	J
ethylmethyl benzene					21	J
Cineole						
Total Unknowns	15080	J	37920	J	7900	J
Total Unknown hydrocarbons	3500	J	640	J	880	J
D-Friedelelean-14-en-3-one	4700	J	890	J	900	J
naphthalene, 1,2,3,4-tetrahydro-1,6-dimethyl-4-(1-methylethyl)						
gamma sitosterol						
hexadecanoic acid						
hexadecane						
unknown Aldehyde						
trimethyl benzene isomer		340	J			

Qualifier Codes:

B - This result is qualitatively invalid since this compound was also detected in a blank at a similar concentration.

J - This result is a quantitative estimate.

NA - Not analyzed for this parameter.

ND - none detected.

Note - No concentration is entered for compounds which were not detected.

** - Sample is a blind duplicate of D11-14A.

ATTACHMENT

V-55

Not No. 4 p. 327

**APPROVED FOR
 RELEASE BY
 QUALITY ASSURANCE**

David R. Bly 2-15-90
 QNQC MANAGER DATE

SECTION 2 SOIL SAMPLE DATA

2.1 Organic Data

The soil samples were analyzed for the organic analyses listed in Table 1-1. The analyses were performed by Intech Biolabs of East Brunswick, New Jersey. The samples were analyzed for base-neutral extractable compounds by SW-846, Method 8270 volatile organic compounds by SW-846, Method 8240 and petroleum hydrocarbons by USEPA Method 418.1. Mass spectral library searches were performed for up to fifteen volatile organic compounds and fifteen base-neutral spectra whose characteristics did not match the target compound spectra. Validated results for these library searches are found in the data summary tables under the heading "Tentatively Identified Compounds (TICs).

The findings offered in this report are based upon a review of the following criteria reported according to the New Jersey Department of Environmental Protection Tier II deliverables format: holding times, blank analyses, surrogate compound recoveries, matrix spike recoveries, duplicate analyses, bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP) mass tuning results, initial and continuing calibration data, quantitation of results, and qualitative mass spectral interpretation.

The organic analyses were performed acceptably, but require a few qualifying statements. It is recommended that the data only be used according to the qualifying statements presented below. Any data which are not qualified in this review should be considered qualitatively and quantitatively valid based on the criteria evaluated.

2.1.1 Organic Data Qualifiers

- The semivolatile extraction holding time for soil samples P-10A, P-15A, P-17B, P-18A, P-19B, S-23, S-22, S-21, S-20, S-19, P-20A, P-21B, P-22A, P-26B, P-27A, SS-7A, SS-7B, SS-8A, SS-8B, SS-9B and SS-13 exceeded the seven day extraction holding time mandated by 40 CFR Part 136 for

aqueous samples. National guidelines currently recommend that this aqueous holding time criteria be applied to soil samples. ERM has evaluated soil sample holding times according to this aqueous criteria. Samples extracted outside the allowable holding time may be subject to degradation. The quantitation limits and/or positive results for these samples should be considered quantitative estimates and may be higher than reported. ERM has placed a "J" qualifier next to the positive results on the data summary tables to indicate that they are quantitative estimates.

- Positive results for methylene chloride, acetone, 2-butanone, toluene and di-n-butylphthalate are qualitatively invalid in the following samples due to the levels at which these compounds were present in the laboratory method blanks and/or travel blanks. EPA protocol requires positive sample results that are less than or equal to ten times (10X) the laboratory method and/or travel blank levels of methylene chloride, acetone, toluene and di-n-butylphthalate (common contaminants) to be qualified as qualitatively invalid.

<u>Compound</u>	<u>Affected Samples</u>
methylene chloride	P-31, SS-10, SS-9A., SS-11, SS-6, SS-5, SS-3, S-2, SS-7A, SS-7B, SS-8B
acetone	P-31, SS-10, SS-9A, SS-11, SS-6, SS-5, SS-3, S-2, SS-7A, SS-7B, SS-8A, SS-8B
2-butanone	P-31, SS-10, SS-9A, SS-7A, SS-8A, SS-8B, SS-11, SS-6, SS-5, SS-7B, SS-3, S-2
toluene	SS-10, SS-9A, SS-11, SS-7A, SS-8A
Di-n-butylphthalate	P-31, SS-10, SS-9A, SS-11, SS-6, SS-5, SS-3, S-2, P-10A, P-17B, P-18A, P-19B, P-20A, P-21B, P-22A, P-26B.

Compound

Affected Samples

Di-n-butylphthalate

P-27A, SS-7A, SS-7B, SS-8A,
SS-8B

The raw data for soil sample SS-7A, indicated the presence of methylene chloride at a concentration of 17 ug/kg. However, Intech failed to report methylene chloride on its data summary forms. ERM has included this result on the data summary tables at the end of this report.

- The mass spectrum for a peak at a retention time of 36.18 minutes in the semivolatile fraction of sample P-22A was library searched by Intech Biolabs and reported as the tentatively identified compound (TIC) octadecanol. The library reference standard for octadecanol has characteristic ions (in order of decreasing intensity) at m/e 43, 56, 82, and 55. The sample spectrum contains these ions, and uncharacteristic ions of lesser intensity at m/e 269 - 418. Because the molecular weight of octadecanol is 268, the identification of this compound in the sample is uncertain. It is possible that there is coelution of two peaks at the retention time of 36.18 minutes that would give ions at higher molecular weights, or that a different compound is actually present. Therefore, this identification has been changed by ERM to an unknown on the data summary table.
- The reported positive results for volatile organic compounds in sample SS07A should be considered quantitative estimates. The surrogate spiking compound, toluene-d8, was recovered above the established quality control (QC) limits. Positive results should be considered biased high due to the elevated surrogate recovery.

Intech Biolabs re-analyzed this sample at the same dilution to confirm the presence of matrix effects. ERM has reported the volatile organic results from the initial analyses and has qualified the positive results for the volatile organic fraction based on the recovery. This has been indicated by placing a "J" qualifier next to the reported quantitative results on the data summary table.

- The relative percent differences (RPD) for 2-butanone, and di-n-butylphthalate reported for the blind duplicate sample sets SS-8B and P-29A, were above ERM's quality control criteria of 30 percent for volatile organic compounds and 40 percent for base-neutral compounds. This indicates a lack of precision for these compounds in this sample and all associated samples of similar matrix. All positive results for these compounds should be considered quantitative estimates. This has been indicated by placing a "J" qualifier next to the positive results for these compounds on the data summary tables.

<u>Compound</u>	<u>RPD (%)</u>
2-butanone	33
Di-n-butyl-phthalate	77%

- The positive results for base-neutral compounds should be considered quantitative estimates for samples SS-9B and SS-13. The surrogate compounds 2-fluorobiphenyl and terphenyl-d14 were recovered above the established quality control limits. Base-neutral compounds may be biased high in these samples. This has been indicated by placing a "J" qualifier next to the positive results for these compounds on the data summary table for these samples.
- All compounds which were qualitatively identified at a concentration below the method quantitation limits have been qualified with a "J" to indicate that they are quantitative estimates.
- All Tentatively Identified Compounds (TICs) have been marked with a "J" qualifier to indicate that their levels are quantitative estimates. ERM has included on the data summary tables only those TICs which are demonstrated not to be the result of laboratory contamination or an instrument artifact.

2.2 Inorganic Data

The inorganic analyses of one soil sample, one travel blank, and one equipment blank collected on 15 March 1990 were performed by Intech Biolabs of East Brunswick, New Jersey.

The samples were analyzed arsenic, beryllium, cadmium, copper, lead, nickel, and zinc by SW-846 Method 6010. The samples were also analyzed for mercury by SW 846 Method 7471.

The findings offered in this report are based on a review of the following criteria reported according to the New Jersey Department of Environmental Protection Tier II deliverables format: holding times, blank analyses, matrix spike recoveries, duplicate analyses, and quantitation of positive results.

The inorganic analyses were performed acceptably, based upon the deliverables received. The data should be considered qualitatively and quantitatively valid based on the criteria evaluated. No qualifiers have been placed on the data summary tables.

SECTION 3 AQUEOUS SAMPLE DATA

3.1 Organic Data

The aqueous samples were analyzed for the organic analyses listed in Table 1-1. The analyses were performed by Intech Biolabs of East Brunswick, New Jersey. The samples were analyzed for base-neutral extractable compounds by SW-846, Method 8270 volatile organic compounds by SW-846, Method 8240 and petroleum hydrocarbons by USEPA Method 418.1. Mass spectral library searches were performed for up to fifteen volatile organic compounds and fifteen base-neutral spectra whose characteristics did not match the target compound spectra. Validated results for these library searches are found in the data summary tables under the heading "Tentatively Identified Compounds (TICs).

The findings offered in this report are based upon a review of the following criteria reported according to the New Jersey Department of Environmental Protection Tier II deliverables format: holding times, blank analyses, surrogate compound recoveries, matrix spike recoveries, duplicate analyses, bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP) mass tuning results, initial and continuing calibration data, quantitation of results, and qualitative mass spectral interpretation.

The organic analyses were performed acceptably, but require a few qualifying statements. It is recommended that the data only be used according to the qualifying statements presented below. Any data which are not qualified in this review should be considered qualitatively and quantitatively valid based on the criteria evaluated.

3.1.1 Organic data Qualifiers

- Positive results for methylene chloride, 2-butanone, and bis-(2-ethylhexyl)-phthalate in the volatile and base-neutral analyses are qualitatively invalid in the following aqueous samples due to the levels at which these compounds were

present in the laboratory method blanks and/or travel blanks.

<u>Compound</u>	<u>Affected Samples</u>
methylene chloride	All samples except SMW 1AS
2-butanone	TW-1, EW-1
bis-(2-ethylhexyl)-phthalate	OW-4S, OW-106S, OW-107S, OW-111S

EPA protocol requires positive sample results that are less than or equal to ten times (10X) the laboratory method and/or travel blank levels of common laboratory contaminants such as methylene chloride, 2-butanone and bis-(2-ethylhexyl)-phthalate to be qualified as qualitatively invalid. This has been indicated by placing a "B" qualifier next to positive results for these compounds on the data summary tables.



TABLE 1-1
Essex Sayerville - Soil Samples
Summary of Sample Data Reviewed

Laboratory I.D.	Sample Location	Sample Date	Analyses Performed	ERM Traffic Number	Matrix
02170	P-10A	3/6/90	TPH, BASE NEUTRALS	0110	soil
02171	P-10B	3/6/90	TPH	0111	soil
02172	P-11A	3/6/90	TPH	0112	soil
02173	P-11B	3/6/90	TPH	0113	soil
02174	P-12A	3/6/90	TPH	0114	soil
02175	P-12B	3/6/90	TPH	0115	soil
02176	P-13A	3/6/90	TPH	0116	soil
02177	P-13B	3/6/90	TPH	0117	soil
02178	P-14A	3/6/90	TPH	0118	soil
02179	P-14B	3/6/90	TPH	0119	soil
02180	P-15A	3/6/90	TPH, BASE NEUTRALS	0120	soil
02181	P-15B	3/6/90	TPH	0121	soil
02182	P-16A	3/6/90	TPH	0122	soil
02183	P-16B	3/6/90	TPH	0123	soil
02184	P-17A	3/6/90	TPH	0124	soil
02185	P-17B	3/6/90	TPH, BASE NEUTRALS	0125	soil
02195	P-18A	3/6/90	TPH, BASE NEUTRALS	0126	soil
02196	P-18B	3/6/90	TPH	0127	soil
02197	P-19A	3/6/90	TPH	0128	soil
02198	P-19B	3/6/90	TPH, BASE NEUTRALS	0129	soil
02199	P-20A	3/6/90	TPH, BASE NEUTRALS	0130	soil
02200	P-20B	3/6/90	TPH	131*	soil
02201	P-21A	3/6/90	TPH	0132	soil
02202	P-21B	3/6/90	TPH, BASE NEUTRALS	0133	soil
02203	P-22A	3/6/90	TPH, BASE NEUTRALS	0134	soil
02204	P-22B	3/6/90	TPH	0135	soil
02205	P-23A	3/6/90	TPH	0136	soil
02206	P-24A	3/6/90	TPH	0138	soil
02207	P-24B	3/6/90	TPH	0139	soil
02208	P-25A	3/6/90	TPH	0140	soil
02209	P-26A	3/6/90	TPH	0142	soil
02210	P-26B	3/6/90	TPH, BASE NEUTRALS	0143	soil
02211	P-27A	3/6/90	TPH, BASE NEUTRALS	0144	soil
02212	P-28A	3/6/90	TPH	0146	soil
02213	P-28B	3/6/90	TPH	0147	soil
02192	P-29A	3/6/90	TPH, VOA, BASE NEUTRALS	0158	soil
	(Blind Dup.)				
02216	P-30	3/6/90	TPH	0163	soil
	(Dup.)				
02261	P-31	3/7/90	TPH, VOA, BASE NEUTRALS	0191	soil
	(Dup.)				
02186	SS-7A	3/6/90	VOA, BASE NEUTRALS	0148	soil
02187	SS-7B	3/6/90	VOA, BASE NEUTRALS	0149	soil
02188	SS-8A	3/6/90	TPH, VOA, BASE NEUTRALS	0150	soil
02189	SS-8B	3/6/90	TPH, VOA, BASE NEUTRALS	0151	soil
02193	TB-S1	3/6/90	TPH, VOA, BASE NEUTRALS	0159	soil
	(Travel Blank)				
02194	FB-S2	3/6/90	TPH, VOA, BASE NEUTRALS	0160	soil
	(Field Blank)				
02263	SS-10	3/7/90	TPH, VOA, BASE NEUTRALS	0189	soil
02264	SS-9A	3/7/90	TPH, VOA, BASE NEUTRALS	0188	soil
02265	SS-11	3/7/90	TPH, VOA, BASE NEUTRALS	0187	soil
02266	SS-6	3/7/90	TPH, VOA, BASE NEUTRALS	0185	soil
02267	SS-5	3/7/90	TPH, VOA, BASE NEUTRALS	0183	soil
02268	SS-3	3/7/90	TPH, VOA, BASE NEUTRALS	0181	soil
02269	S-2	3/7/90	TPH, VOA, BASE NEUTRALS	0182	soil
02258	S-19	3/7/90	TPH, VOA, BASE NEUTRALS	0166	soil
02257	S-20	3/7/90	TPH, VOA, BASE NEUTRALS	0167	soil
02255	S-21	3/7/90	TPH, VOA, BASE NEUTRALS	0168	soil
02252	S-22	3/7/90	TPH, VOA, BASE NEUTRALS	0169	soil
02251	S-23	3/7/90	TPH, VOA, BASE NEUTRALS	0170	soil
02254	SS-12	3/7/90	TPH, VOA, BASE NEUTRALS	0171	soil
02554	SS-13	3/15/90	PP metals, BASE NEUTRALS	0195	soil
02555	SS-9B	3/15/90	TPH, VOA, BASE NEUTRALS	0196	soil
02259	FB-S4	3/7/90	TPH, VOA, BASE NEUTRALS	0173	soil
02260	TB-S3	3/7/90	TPH, VOA, BASE NEUTRALS	0172	solid
02571	TB-S5	3/15/90	PP metals, BASE NEUTRALS	0197	sand(o.b.)
			TPH, VOA		
02572	EB-S6	3/15/90	PP metals, BASE NEUTRALS	0198	sand(o.b.)
			TPH, VOA		

ATTACHMENT



Ref. No. 4 p. 335

TABLE 1-1(cont)
Essex Sayerville - Soil Samples
Summary of Sample Data Reviewed

Laboratory I.D.	Sample Location	Sample Date	Analyses Performed	ERM Traffic Number	Matrix
02270	SW-11	3/7/90	TPH.VOA.BASE NEUTRALS	0180	aqueous
02271	SW-4	3/7/90	TPH.VOA.BASE NEUTRALS	0177	aqueous
02272	SW-3	3/7/90	TPH.VOA.BASE NEUTRALS	0174	aqueous
02273	SW-2	3/7/90	TPH.VOA.BASE NEUTRALS	0175	aqueous
03168	MW-1S	4/5/90	TPH.VOA.BASE NEUTRALS	0199	aqueous
03169	MW-1D	4/5/90	TPH.VOA.BASE NEUTRALS	0200	aqueous
03170	MW-2S	4/5/90	TPH.VOA.BASE NEUTRALS	0201	aqueous
03171	SMW-3S	4/5/90	TPH.VOA.BASE NEUTRALS	0202	aqueous
03172	SMW-4S	4/5/90	TPH.VOA.BASE NEUTRALS	0203	aqueous
03173	SMW-107D	4/5/90	TPH.VOA.BASE NEUTRALS	0204	aqueous
03174	SMW-1AS	4/5/90	TPH.VOA.BASE NEUTRALS	0205	aqueous
03175	SMW-1AD	4/5/90	TPH.VOA.BASE NEUTRALS	0206	aqueous
03176	OW-2S	4/5/90	TPH.VOA.BASE NEUTRALS	0207	aqueous
03177	OW-3S	4/5/90	TPH.VOA.BASE NEUTRALS	0208	aqueous
03178	OW-3D	4/5/90	TPH.VOA.BASE NEUTRALS	0209	aqueous
03179	OW-4S	4/5/90	TPH.VOA.BASE NEUTRALS	0210	aqueous
03180	OW-4D	4/5/90	TPH.VOA.BASE NEUTRALS	0211	aqueous
03181	OW-106S	4/5/90	TPH.VOA.BASE NEUTRALS	0212	aqueous
03182	OW-106D	4/5/90	TPH.VOA.BASE NEUTRALS	0213	aqueous
03183	OW-107S	4/5/90	TPH.VOA.BASE NEUTRALS	0214	aqueous
03184	OW-111S	4/5/90	TPH.VOA.BASE NEUTRALS	0215	aqueous
03185	OW-111D	4/5/90	TPH.VOA.BASE NEUTRALS	0216	aqueous
03188	OW-112S	4/5/90	TPH.VOA.BASE NEUTRALS	0219	aqueous
03186	TW-1	4/5/90	TPH.VOA.BASE NEUTRALS	0217	aqueous
03187	EW-1	4/5/90	TPH.VOA.BASE NEUTRALS	0218	aqueous
02253	RC-1A	3/7/90	TPH.VOA.BASE NEUTRALS	0164	aqueous
02256	RC-2A	3/7/90	TPH.VOA.BASE NEUTRALS	0165	aqueous
02260	TB-S3	3/7/90	TPH.VOA.BASE NEUTRALS	0172	aqueous


ATTACHMENT *v-64*

 Ref. No. 4 p. 336

TABLE 2-1
ESSEX SAYREVILLE FACILITY ECRA PHASE I INVESTIGATION
SAMPLING SUMMARY

Note: TPH = Total Petroleum Hydrocarbons
SSPI = Supplemental Sampling Plan Implementation
BN+15 = Base/Neutral Organic Compounds
Plus 15 Tentatively Identified Compounds
VO+15 = Volatile Organic Compounds Plus 15 Tentatively Identified Compounds

NA = Not Applicable
PbMetals = Priority Pollutant Metals
MEK = Methyl Ethyl Ketone

Area of Concern	Location	Sample Number	Sample Matrix	Sample Depth	Sample Type	Analytical Parameters	Phase of Investigation When Sample Was Collected	ERM Traffic Number
Area 1: Bis (2-ethylhexyl) phthalate spill and seep area	Burt's Creek	RC-1A	Creek Water	Surface	Grab	VO+15, BN+15, TPH	SSPI	0164
	Burt's Creek	RC-2A	Creek Water	Surface	Grab	VO+15, BN+15, TPH	SSPI	0165
	Burt's Creek	S-19	Creek Sediment	0-2'	Grab	VO+15, BN+15, TPH	SSPI	0166
	Burt's Creek	S-20	Creek Sediment	0-2'	Grab	VO+15, BN+15, TPH	SSPI	0167
	Burt's Creek	S-21	Creek Sediment	0-2'	Grab	VO+15, BN+15, TPH	SSPI	0168
	Burt's Creek	S-22	Creek Sediment	0-2'	Grab	VO+15, BN+15, TPH	SSPI	0169
	Burt's Creek	S-23	Creek Sediment	0-2'	Grab	VO+15, BN+15, TPH	SSPI	0170
	Burt's Creek	SS-12	Creek Sediment	0-2'	Grab	VO+15, BN+15, TPH	SSPI	0171
	Seep Area	R-1A	Soil	0-6"	Grab	BN+15	Seep Area Sampling - October 1989	15633
	Seep Area	R-2A	Soil	0-12"	Grab	BN+15	Seep Area Sampling - October 1989	15634
Seep Area	Seep Area	R-3A	Soil	0-8"	Grab	BN+15	Seep Area Sampling - October 1989	15635
	Seep Area	R-3B	Soil	24-30"	Grab	BN+15	Seep Area Sampling - October 1989	15636
	Seep Area	R-3C	Soil	48-54"	Grab	BN+15	Seep Area Sampling - October 1989	15637
	Seep Area	R-4A	Soil	0-6"	Grab	BN+15	Seep Area Sampling - October 1989	15638
	Seep Area	R-4B	Soil	24-36"	Grab	BN+15	Seep Area Sampling - October 1989	15639
	Seep Area	R-4C	Soil	48-54"	Grab	BN+15	Seep Area Sampling - October 1989	15640
	Seep Area	R-5A	Soil	0-6"	Grab	BN+15	Seep Area Sampling - October 1989	15641
	Seep Area	R-5B	Soil	24-30"	Grab	BN+15	Seep Area Sampling - October 1989	15642
	Seep Area	R-6A	Soil	0-9"	Grab	BN+15	Seep Area Sampling - October 1989	15643
	Seep Area	R-6B	Soil	24-30"	Grab	BN+15	Seep Area Sampling - October 1989	15644
	Seep Area	R-6C	Soil	48-54"	Grab	BN+15	Seep Area Sampling - October 1989	15645
	Seep Area	R-7A	Soil	0-9"	Grab	BN+15	Seep Area Sampling - October 1989	15646
	Seep Area	R-7B	Soil	24-30"	Grab	BN+15	Seep Area Sampling - October 1989	15647
	Seep Area	R-7C	Soil	48-54"	Grab	BN+15	Seep Area Sampling - October 1989	15648
	Seep Area	R-8A	Soil	0-6"	Grab	BN+15	Seep Area Sampling - October 1989	15649
	Seep Area	R-8B	Soil	24-36"	Grab	BN+15	Seep Area Sampling - October 1989	15650
	Seep Area	R-8C	Soil	48-54"	Grab	BN+15	Seep Area Sampling - October 1989	15651
	Seep Area	DR-10A	Soil	0-6"	Grab	BN+15	Seep Area Sampling - December 1989	24753
	Seep Area	DR-11A	Soil	0-6"	Grab	BN+15	Seep Area Sampling - December 1989	24751
	Seep Area	DR-12A	Soil	0-6"	Grab	BN+15	Seep Area Sampling - December 1989	24752
	Seep Area	DR-13A	Soil	0-6"	Grab	BN+15	Seep Area Sampling - December 1989	24755
	Seep Area	DR-13B	Soil	24-26"	Grab	BN+15	Seep Area Sampling - December 1989	24754
	Seep Area	DR-14A	Soil	6-12"	Grab	BN+15	Seep Area Sampling - December 1989	24761
	Seep Area	DR-14B	Soil	30-36"	Grab	BN+15	Seep Area Sampling - December 1989	24763
	Seep Area	DR-14C	Soil	42-44"	Grab	BN+15	Seep Area Sampling - December 1989	24764
	Seep Area	(SS-9A)	Soil	18-24"	Grab	VO+15, BN+15, TPH	SSPI	0188
	Seep Area	SS-9B	Soil	60-66"	Spill-Spoon	VO+15, BN+15, TPH	SSPI	0196

ATTACHMENT

V-65



TABLE 2-1
ESSEX SAYREVILLE FACILITY RCRA PHASE I INVESTIGATION
SAMPLING SUMMARY

Note: TPH = Total Petroleum Hydrocarbons
SSPI = Supplemental Sampling Plan Implementation
BN+15 = Base/Neutral Organic Compounds
Plus 15 Tentatively Identified Compounds
VO+15 = Volatile Organic Compounds Plus 15 Tentatively Identified Compounds

NA = Not Applicable
PMTals = Priority Pollutant Metals
MEK = Methyl Ethyl Ketone

Area of Concern	Location	Sample Number	Sample Matrix	Sample Depth	Sample Type	Analytical Parameters	Phase of Investigation When Sample Was Collected	ERM Traffic Number
Area 2: Tank Farm and Adjacent Unpaved Areas	East of Tank Farm	P-4	Soil	0-6"	Grab	BN+15, TPH	At-Risk Sampling	11539
	East of Tank Farm	P-10A	Soil	0-6"	Grab	BN+15, TPH	SSPI	0110
	East of Tank Farm	P-10B	Soil	12-18"	Grab	TPH	SSPI	0111
	East of Tank Farm	P-11A	Soil	0-6"	Grab	TPH	SSPI	0112
	East of Tank Farm	P-11B	Soil	12-18"	Grab	TPH	SSPI	0113
	East of Tank Farm	P-12A	Soil	0-6"	Grab	TPH	SSPI	0114
	East of Tank Farm	P-12B	Soil	12-18"	Grab	TPH	SSPI	0115
	East of Tank Farm	P-13A	Soil	0-6"	Grab	TPH	SSPI	0116
	East of Tank Farm	P-13B	Soil	12-18"	Grab	TPH	SSPI	0117
	East of Tank Farm	P-14A	Soil	0-6"	Grab	TPH	SSPI	0118
	East of Tank Farm	P-14B	Soil	12-18"	Grab	TPH	SSPI	0119
	East of Tank Farm	P-15A	Soil	0-6"	Grab	BN+15, TPH	SSPI	0120
	East of Tank Farm	P-15B	Soil	12-18"	Grab	TPH	SSPI	0121
	East of Tank Farm	P-16A	Soil	0-6"	Grab	TPH	SSPI	0122
	East of Tank Farm	P-16B	Soil	12-18"	Grab	TPH	SSPI	0123
	East of Tank Farm	P-17A	Soil	0-6"	Grab	TPH	SSPI	0124
	East of Tank Farm	P-17B	Soil	12-18"	Grab	TPH	SSPI	0125
	East of Tank Farm	P-18A	Soil	0-6"	Grab	BN+15, TPH	SSPI	0126
	East of Tank Farm	P-18B	Soil	12-18"	Grab	TPH	SSPI	0127
	East of Tank Farm	P-19A	Soil	0-6"	Grab	TPH	SSPI	0128
	East of Tank Farm	P-19B	Soil	12-18"	Grab	BN+15, TPH	SSPI	0129
	East of Tank Farm	P-20A	Soil	0-6"	Grab	BN+15, TPH	SSPI	0130
	East of Tank Farm	P-20B	Soil	12-18"	Grab	TPH	SSPI	0131
	East of Tank Farm	P-21A	Soil	0-6"	Grab	TPH	SSPI	0132
	East of Tank Farm	P-21B	Soil	12-18"	Grab	BN+15, TPH	SSPI	0133
	East of Tank Farm	MW-1S	Ground Water	Surface	Ballor	VO+15, BN+15, TPH	SSPI	0199
	East of Tank Farm	MW-1D	Ground Water	Surface	Ballor	VO+15, BN+15, TPH	SSPI	0200
	West of Tank Farm	P-3	Soil	0-6"	Grab	VO+15, TPH	At-Risk Sampling	11499
	West of Tank Farm	SMW-3S	Ground Water	Surface	Ballor	VO+15, BN+15, TPH	SSPI	0202
Area 3: Hazardous Waste Drum Storage Area and Unpaved Area to the West	South of Warehouse	P-2	Soil	0-6"	Grab	BN+15, TPH	At-Risk Sampling	12043
	South of Warehouse	P-22A	Soil	0-6"	Grab	BN+15, TPH	SSPI	0134
	South of Warehouse	P-22B	Soil	12-18"	Grab	TPH	SSPI	0135
	South of Warehouse	P-23A	Soil	0-6"	Grab	TPH	SSPI	0136
	South of Warehouse	P-23B	Soil	12-18"	Grab	TPH	Sample Not Collected - Auger Refusal	
	South of Warehouse	P-24A	Soil	0-6"	Grab	TPH	SSPI	0138
	South of Warehouse	P-24B	Soil	12-18"	Grab	TPH	SSPI	0139
	South of Warehouse	P-25A	Soil	0-6"	Grab	TPH	SSPI	0140
	South of Warehouse	P-25B	Soil	12-18"	Grab	TPH	Sample Not Collected - Auger Refusal	
	South of Warehouse	P-26A	Soil	0-6"	Grab	TPH	SSPI	0142
	South of Warehouse	P-26B	Soil	12-18"	Grab	BN+15, TPH	SSPI	0143
	South of Warehouse	P-27A	Soil	0-6"	Grab	BN+15, TPH	SSPI	0144
	South of Warehouse	P-27B	Soil	12-18"	Grab	TPH	Sample Not Collected - Auger Refusal	
	South of Warehouse	P-28A	Soil	0-6"	Grab	TPH	SSPI	0146
	South of Warehouse	P-28B	Soil	12-18"	Grab	TPH	SSPI	0147
	South of Warehouse	MW-2S	Ground Water	Surface	Ballor	VO+15, BN+15, TPH	SSPI	0201

ATTACHMENT

V-66



Ref. NO. 4 P. 338

TABLE 2-1
ESSEX SAYREVILLE FACILITY ECRA PHASE I INVESTIGATION
SAMPLING SUMMARY

Note: TPH = Total Petroleum Hydrocarbons
SSPI = Supplemental Sampling Plan Implementation
BN+15 = Base/Neutral Organic Compounds
Plus 15 Tentatively Identified Compounds
VO+15 = Volatile Organic Compounds Plus 15 Tentatively Identified Compounds

NA = Not Applicable
PPmetals = Priority Pollutant Metals
MEK = Methyl Ethyl Ketone

Area of Concern	Location	Sample Number	Sample Matrix	Sample Depth	Sample Type	Analytical Parameters	Phase of Investigation When Sample Was Collected	ERM Traffic Number
Area 4: Empty Drum Storage Area	East of Warehouse	SS-8A	Soil	0-6"	Grab	VO+15, BN+15, TPH	SSPI	0150
	East of Warehouse	SS-8B	Soil	18-24"	Grab	VO+15, BN+15, TPH	SSPI	0151
	East of Warehouse	SMW-4S	Ground Water	Surface	Ballor	VO+15, BN+15, TPH	SSPI	
Area 5: Filter Burn Area	Southeast of Warehouse	SS-7A	Soil	0-6"	Grab	BN+15, TPH	SSPI	0148
		SS-7B	Soil	18-24"	Grab	BN+15, TPH	SSPI	0149
Area 6: Former NJPDES Discharge Point	Burt's Creek	SS-12	Creek Sediment	0-2"	Grab	VO+15, BN+15, TPH	SSPI	0171
Area 7: Kneader Extruder Hot Oil Heater	West of Warehouse	SS-10	Soil	0-6"	Grab	TPH, BN+15	SSPI	0189
Area 8: Steam Condensate Drain	East of Warehouse	SS-13	Soil	0-2"	Grab	BN+15, PP Metals	SSPI	0195
Area 9: Spill Prevention/ Sewer Drains	SW of Warehouse	W-1	Drain Water	Surface	Grab	VO+15, BN+15, TPH	Sample Not Collected - No Sample	
	NE of Warehouse	SW-2	Drain Water	Surface	Grab	VO+15, BN+15, TPH	SSPI	0175
	NE of Warehouse	SW-3	Drain Water	Surface	Grab	VO+15, BN+15, TPH	SSPI	0174
	NE of Warehouse	SW-4	Drain Water	Surface	Grab	VO+15, BN+15, TPH	SSPI	0177
	NE of Warehouse	SW-5	Drain Water	Surface	Grab	VO+15, BN+15, TPH	Sample Not Collected - No Sample	
	SE of Warehouse	SW-6	Drain Water	Surface	Grab	VO+15, BN+15, TPH	Sample Not Collected - No Sample	
	SW of Warehouse	SW-11	Drain Water	Surface	Grab	VO+15, BN+15, TPH	SSPI	0180
	SW of Warehouse	S-1	Drain Sediment	Surface	Grab	VO+15, BN+15, TPH	Sample Not Collected - No Sample	
	NE of Warehouse	S-2	Drain Sediment	Surface	Grab	VO+15, BN+15, TPH	SSPI	0182
	NE of Warehouse	SS-3	Drain Sediment	Surface	Grab	VO+15, BN+15, TPH	SSPI	
	NE of Warehouse	SS-4	Drain Sediment	Surface	Grab	VO+15, BN+15, TPH	Sample Not Collected - No Sample	
	NE of Warehouse	SS-5	Drain Sediment	Surface	Grab	VO+15, BN+15, TPH	SSPI	
	SE of Warehouse	SS-6	Drain Sediment	Surface	Grab	VO+15, BN+15, TPH	SSPI	
	SW of Warehouse	SS-11	Drain Sediment	Surface	Grab	VO+15, BN+15, TPH	SSPI	
Area 10: Shipping Door Area Sewer Drains	West Side of Warehouse	P-1	Soil	0-6"	Grab	BN+15, TPH	At-Risk Sampling	12042

**ESSEX - SAYREVILLE
SOIL SAMPLE ANALYSIS RESULTS
COLLECTED MARCH 1990**

Sample Location	P-26A	P-26B	P-27A	P-28A	P-28B	P-29A	P-30
Sample Date	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90	3/6/90
RM Traffic Report No.	0142	0143	0144	0146	0147	0158	0116
Matrix	soil	soil	soil	soil	soil	soil	soil
Volatile Organic Compounds (µg/Kg)	NA	NA	NA	NA	NA		NA
ethylene chloride						14 B	
acetone						10	
Butanone						15	
Semi-volatile Organic Compounds (µg/Kg)							
Semi-volatile Organic Compounds (µg/Kg)	NA			NA	NA		
n-butyl phthalate		1600 B	3900 B			2700 B	
diis(2-ethylhexyl)phthalate		90 J	1000 J			710	
acenaphthene			330 J				
fluorene			280 J				
benanthrene			2400 J				
anthracene			580 J				
pyrene			2300 J				
diethyl phthalate		66 J					
diethylbenzyl phthalate			320 J				
benzo(a)anthracene			1000 J				
fluoranthene			1200 J				
fluoranthene			1700 J				
Semi-volatile Organic Compounds (µg/Kg)	NA			NA	NA		NA
total Unknown		6400 J				3300 J	
hexadecanoic acid deriv.		2600 J					
octadecanoic acid deriv.		2200 J	5400				
organic acid		10,000 J				1300 J	
unknown alkane		1100 J	16400 J				
unknown alkene		2500 J					
20-Friedoolean-14-en-3-one		820 J					
organic alcohol		6000 J				1100 J	
unknown Aldehyde		3300 J					
cycloalkane deriv.		700 J					
sulfur mol.		1700 J	1100 J				
unknown Poly Aromatic Hydrocarbon			3400 J				
-(1,1'-biphenyl)-4-yl-Ethanone						300 J	
quaterphenyl						400 J	
Total Petroleum Hydrocarbons (mg/Kg)	130	19	1200	ND	19	ND	190

- This result is a quantitative estimate.
- This result is qualitatively invalid since this compound was detected in a blank at a similar concentration
- D - None detected.
- A - Not analyzed.
- Note: No concentration is entered for compounds which were not detected.
- Note: All soil results are reported on a dry weight basis.

ATTACHMENT V-68

**APPROVED FOR
RELEASE BY
QUALITY ASSURANCE**

David R. Gye 5-17-90

ERM
Group

Ref No. 4 D.340

**ESSEX - SAYREVILLE
SOIL SAMPLES ANALYSIS RESULTS
COLLECTED MARCH 1990**

Sample Location	SS-7A	SS-7B	SS-8A	SS-8B	P-31 (Dup.)
Sample Date	3/6/90	3/6/90	3/6/90	3/6/90	3/7/90
ERM Traffic Report No.	0148	0149	0150	0151	0191
Matrix	soil	soil	soil	soil	soil
Volatile Organic Compounds (µg/Kg)					
Methylene chloride	25 B	11 B		19 B	22 B
Tetrachloroethene	4 J				
Toluene	8 B		2 B		3 J
Acetone	15 B	11 B	6 B	10 B	11 B
2-Butanone	20 B	28 B	14 B	21 B	13 B
Trichloroethene		2 J	3 J	2 J	
Tentatively Identified Compounds (µg/Kg)	NA	ND	ND	NA	ND
Semivolatile Organic Compounds (µg/Kg)					
Di-n-butyl phthalate	3900 B	670 B	470 B	1200 B	1100 B
Bis(2-ethylhexyl)phthalate	7100 J	84 J	140 J	530 J	9000
Di-n-octyl phthalate	2000 J				
Tentatively Identified Compounds (µg/Kg)					
Total Unknown	33000 J	2790 J	4910 J	3470 J	63700 J
Hexadecanoic acid deriv.	13900 J	14500 J	2210 J	9230 J	
Octadecenoic acid deriv.		3900 J		1510 J	
Organic acid		990 J	1060 J	2400 J	
Unknown alkane				750 J	
Unknown alkene	5100 J		3000 J		
Unknown phthalate	11200 J	1100 J	380 J	960 J	
Tetradecadiene		250 J	630 J		
Propanoic acid deriv.		630 J	250 J	480 J	
Sulfur mol.		250 J			
Organic alcohol			250 J	5700 J	
Acetone dimer			690 J		
Cyclo alkane				340 J	
Total Petroleum Hydrocarbons (mg/Kg)	NA	NA	ND	40	120

J - This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration

ND - None detected.

NA - Not analyzed.

Note: No concentration is entered for compounds which were not detected.

Note: All soil results are reported on a dry weight basis.

ATTACHMENT v-69

**APPROVED FOR
RELEASE BY
QUALITY ASSURANCE**

David R. By 5-7-90
QA/QC MANAGER DATE



Ref. No. 4 p. 341

**ESSEX - SAYREVILLE
SOIL SAMPLES ANALYSIS RESULTS
COLLECTED MARCH 1990**

Sample Location	SS-3	S-2	S-19	S-20	S-21
Sample Date	3/7/90	3/7/90	3/7/90	3/7/90	3/7/90
ERM Traffic Report No.	0181	0182	0166	0167	0168
Matrix	soil	soil	soil	soil	soil
Volatile Organic Compounds (µg/Kg)					
Methylene chloride	9 B	11 B	3 B	5 B	ND
Toluene	21	2 J			
Acetone	50B	24B	61	ND	ND
2-Butanone	41B	36B			
Carbon disulfide	13				
meta- + para-Xylene					48000
Tentatively Identified Compounds (µg/Kg)	ND	ND	ND		
Ethylmethybenzene					6600 J
Total Unlanaous				91J	
Total Unlanaous Hydrocarbon				79J	
Semivolatile Organic Compounds (µg/Kg)					
Di-n-butyl phthalate	14000 B	2100 B	5000 B	9500 J	1100 B
Bis(2-ethylhexyl)phthalate	470000	1200000	980	4400 J	3500
Phenanthrene	2400	5400 J			
Pyrene	20000	25000		3600 J	
Chrysene	8200 J	9200 J		3100 J	
Benzo(b)fluoranthene				4100 J	
Di-n-octyl phthalate	340000	320000			
fluoranthene	1900 J	2300 J		3400 J	
Nitroso Diphenyl amine Semivolatile	3100J				
Tentatively Identified Compounds (µg/Kg)					
Total Unknown	46700J	43400J	11080J	283600 J	67300 J
Hexadecanoic acid deriv.			2230	22200 J	6500 J
Octadecenoic acid deriv.			1400J		
Organic acid			1460		
Hydrocarbon	71000J	63200J			
Total unknown alkene			2800J	23000 J	14500 J
Unknown phthalate	64,400J	306500J			
D-Friedoolean-14-en-3-one					1200
Propanoic acid deriv.		12000J			ND
Sulfur mol.			830J		
Benzene deriv.	11000J				
Phthalic anhydride	6400J	5600J			
Cyclohexane	20300J				
Anthracene deriv.	7500J	16600J			
Pthalic anhydride		5600J			
Stannane, chlorotis		21000J			
Total alkyl benzene		18000J			
1,2,3-Propanetriol			640J		
Total Petroleum Hydrocarbons (mg/Kg)	13000	5300	ND	100	ND

J - This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration.

ND - None detected.

NA - Not analyzed.

Note: No concentration is entered for compounds which were not detected.

Note: All soil results are reported on a dry weight basis.

ATTACHMENT

**APPROVED FOR
RELEASE BY
QUALITY ASSURANCE**

David R. Cly 5-17-90



Ref. No. 4 p.34

ESSEX - SAYREVILLE
SOIL SAMPLES ANALYSIS RESULTS
COLLECTED MARCH 1990

Sample Location	S-22	S-23	SS-12	SS-13	SS-9B
Sample Date	3/7/90	3/7/90	3/7/90	3/15/90	3/15/90
ERM Traffic Report No.	169	170	171	195	196
Matrix	soil	soil	soil	soil	soil
Volatile Organics (ug/Kg)				NA	
Methylene chloride	70 B	5 B	3 B		68 B
Acetone		131	69		80 B
Toluene					21 J
Meta-Xylene					10000
ortho- + para-Xylenes					3300
Chloroform			3 J		
Tentatively Identified Compounds (ug/Kg)	ND	ND	ND		ND
Semivolatile Organic Compounds (ug/Kg)					
Di-n-butyl phthalate	980 B	4200 B	1700 B		
Bis(2-ethylhexyl)phthalate	920 J	180000	5400	11000 J	1000000 J
Di-n-octyl phthalate	7400		22000	3200 J	11000 J
Phenanthrene	320 J		150 J		110 J
Pyrene	5600	800 J	2300		
Fluoranthene		1200 J			
Chrysene	970 J	1100 J		830 J	
Tentatively Identified Compounds (ug/Kg)					
Hexanedioic acid deriv.		16000J			
Unknown Phthalate			4900 J		31900 J
Tridecanoic acid deriv.		22000J		12000 J	46500 J
Total Unknown	12780 J	24000J	6840 J	28300 J	3600 J
Total Unknown Hydrocarbon	17100 J		18000 J		3400 J
Total Alkyl Benzene	1530 J				
Bicyclohexyl, phenyl		1800J		9500 J	1700 J
Sulfur mol.		31000J			
Benzene, dimethyl	1100 J				
Phthalic anhydride			770 J		
Bicyclohexyl, 4-phenyl			4200 J		
Prpanic acid deriv.			480 J		
Quaterphenyl				20000 J	
Propanetriol monoacetate	2300 J		960 J		
Total Petroleum Hydrocarbons (mg/Kg)	4900	800	2900	NA	300
Metals (ug/Kg)	NA	NA	NA		NA
Arsenic				3400	
Beryllium				570	
Cadmium				3000	
Chromium				16000	
Copper				130000	
Lead				230000	
Mercury				1000	
Nickel				23000	
Zinc				330000	

J - This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a plant at a similar concentration

ND - None detected.

NA - Not analyzed.

Note: No concentration is entered for compounds which were not detected

Note: All soil results are reported on a dry weight basis.

RELEASE BY ATTACHMENT
QUALITY ASSURANCE

David R. Bly 5-77-90



Ref No 4 034

**ESSEX - SAYREVILLE
SOIL SAMPLES ANALYSIS RESULTS
COLLECTED MARCH 1990**

Sample Location	SS-10	SS-9A	SS-11	SS-6	SS-5
Sample Date	3/7/90	3/7/90	3/7/90	3/7/90	3/7/90
ERM Traffic Report No.	0189	0188	0187	185	183
Matrix	soil	soil	soil	solid	soil
Volatile Organics (µg/Kg)					
Methylene chloride	19 B	1800 B	15 B	18 B	18 B
Acetone	13 B	3300 B	11 B	37 B	30 B
2-Butanone	29 B	7600 B	16 B	65 B	40 B
Toluene	6 B	630 B	7 B	17	
Meta-Xylene		17000			
ortho- + para-Xylenes		5600			
Tentatively Identified Compounds (µg/Kg)	ND	ND	ND	ND	ND
Semivolatile Organic Compounds (µg/Kg)					
Di-n-butyl phthalate	1400 B		2000 B	4800 B	4800 B
Bis(2-ethylhexyl)phthalate	3400	36000000	23000	3400000	
Di-n-octyl phthalate		83000	1800 J	2500000	
Fluorene		78 J			
Phenanthrene		120 J			1700 J
Pyrene		160 J			9700 J
Fluoranthene					2100 J
ethyl phthalate					12000
Tentatively Identified Compounds (µg/Kg)					
Hexanedioic acid deriv.	1300 J		8500 J		
Unknown Phthalate	1600 J	93900 J		2776000 J	
Total Unknown Hydrocarbon	5900 J	1500 J	10000 J		
Octadecenoic acid deriv.					
Organic acid	4320 J				
Total Unknown	19020 J	9280 J	30500 J		
Benzene, methyl	10000 J			87000 J	
	1350 J				
	320 J				
Unknown Aldehyde					
Alkyl Benzene		2300 J			
Bicyclohexyl, phenyl		3900 J			
Sulfur mol.		1000 J			
Stannane				269000 J	
Butylbenzyl phthalate					7000 J
Chrysene					4600 J
Di-n-octyl phthalate					76000
Mono decanoic Acid	1400J				
Dimethyl benzene		5300 J			
Propanetriol monoacetate					4500J
Benzoic Acid Derivative					7900J
Total Petroleum Hydrocarbons (mg/Kg)	110	420	1300	940	1700

J - This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration

ND - None detected.

A - Not analyzed.

Note: No concentration is entered for compounds which were not detected.

Note: All soil results are reported on a dry weight basis.

**APPROVED FOR ATTACHMENT
RELEASE BY
QUALITY ASSURANCE**

David R. Bly 5-17-90
DATE



Ref. No. 4 p. 344

**ESSEX - SAYREVILLE
WATER SAMPLE ANALYSIS RESULTS
COLLECTED MARCH AND APRIL 1990**

Sample Location	SMW-1AS	SMW-1AD	OW-2S	OW-3S	OW-3D	OW-4S	OW-4D	OW-106S	OW-106D	OW-107S
Sample Date	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90
ERM Traffic Report No.	0205	0206	0207	0208	0209	0210	0211	0212	0213	0214
Matrix	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous
Volatile Organic Compounds (µg/L)										
Methylene chloride		10 B	9 B	21 B	22 B	22 B	10 B	9 B	10 B	22 B
Meta-Xylene						3 J				9
Trans-1,2-Dichloroethene										
Tentatively Identified Compounds (µg/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semivolatile Organic Compounds (µg/L)										
Di-n-butyl phthalate	ND	ND	ND	ND	ND		ND			
Bis(2-ethylhexyl)phthalate						6 B		4 B		3 B
Tentatively Identified Compounds (µg/L)		ND			ND	ND	ND		ND	
Total Unknown	5 J		6 J					6 J		
Sulfur mol.	5 J			4 J						
2-Pentanone, 4,4 dimethyl										5 J
1,3-dimethyl benzene				8 J						5 J
Unknown Alkyl Phenol										
Total Petroleum Hydrocarbons (mg/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

J - This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration

ND - None detected.

NA - Not analyzed.

Note: No concentration is entered for compounds which were not detected.

ATTACHMENT

APPROVED FOR
RELEASE BY
QUALITY ASSURANCE
David L. Blum 5-17-90
QA/QC MANAGER DATE

Ref. No. 4 P. 345

U-73

ESSEX - BAYREVILLE
WATER SAMPLE ANALYSIS RESULTS
COLLECTED MARCH AND APRIL 1990

Sample Location	SW-11	SW-4	SW-3	SW-2	MW-1S	MW-1D	MW-2S	SMW-3S	SMW-4S	SMW-107D
Sample Date	3/7/90	3/7/90	3/7/90	3/7/90	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90
EFM Traffic Report No.	180	177	174	175	199	0200	0201	0202	0203	0204
Matrix	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous
Volatile Organic Compounds (µg/L)										
Methylene chloride	10 B	7 B	3 B	11 B	11 B	20 B	11 B	21 B	10 B	6 B
trans-1,2-Dichloroethene	3 J		2 J	3 J						
Toluene				6						
Acetone								6 B		
2-Butanone										
Tentatively Identified Compounds (µg/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semivolatile Organic Compounds (µg/L)										
Di-n-butyl phthalate			44	62	22	22				
Bis(2-ethylhexyl)phthalate	6 J	1 J	1 J	1 J						
Chrysene					6 J	6 J				
Naphthalene			1 J							
N-Nitrosodiphenylamine		2 J	1 J							
Di-n-octyl phthalate		67	150	66						
Tentatively Identified Compounds (µg/L)					ND	ND	ND	ND		ND
Total Unknown	19 J	43 J	166 J	122 J					13.47	
Unknown alkane		12 J	16 J							
Unknown phthalate		333 J	981 J	969 J						
Sulfur mol.			4 J							
2-Pyrrolidinone		120 J	79 J							
Morpholine			8 J	129 J						
Stannane										
Total Petroleum Hydrocarbons (mg/L)	0.47	3.3	29	18	ND	ND	ND	ND	ND	ND

J - This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration

ND - None detected.

NA - Not analyzed.

Note: No concentration is entered for compounds which were not detected.

APPROVED FOR
RELEASE BY
QUALITY ASSURANCE

David K. Olye 5-17-90
SAC/CM DATE

Ref. No. 4 P. 346
ATTACHMENT 1-74

**ESSEX - SAYREVILLE
WATER SAMPLE ANALYSIS RESULTS
COLLECTED MARCH AND APRIL 1990**

Sample Location	OW-111S	OW-111D	OW-112S	TW-1	EW-1	RC-1A	RC-2A
Sample Date	4/5/90	4/5/90	4/5/90	4/5/90	4/5/90	3/7/90	3/7/90
ERM Traffic Report No.	0215	0216	0219	0217	0218	0164	0165
Matrix	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous	aqueous
Volatile Organic Compounds (µg/L)							
Methylene chloride	5 B	10 B	9 B	22 B 5 B	21 B 50 B	10 B	11 B
2-Butanone						4 J 1 J	
ortho- + para-Xylenes							
Benzene							
Tentatively Identified Compounds (µg/L)	ND	ND	ND	ND	ND	ND	ND
Semivolatile Organic Compounds (µg/L)							
Bis(2-ethylhexyl)phthalate	8 B	ND	ND	ND	ND	49	2 J
Tentatively Identified Compounds (µg/L)			ND		ND		ND
Total Unknown	13 J			14 J			
Unknown Alkyl Phenol		9 J				8 J	
Benzene, 1,3-dimethyl							
Total Petroleum Hydrocarbons (mg/L)	ND	ND	ND	ND	ND	ND	ND

- This result is a quantitative estimate.

B - This result is qualitatively invalid since this compound was detected in a blank at a similar concentration

ND - None detected.

NA - Not analyzed.

Note: No concentration is entered for compounds which were not detected.

**APPROVED FOR
RELEASE BY
QUALITY ASSURANCE**

David R. Blum 5/7/90
QUALITY MANAGER DATE

ATTACHMENT

Ref. No. 4P.347
V-75

ATTACHMENT W

02-9009-10-SI
REV. NO. 0

FINAL DRAFT
SITE INSPECTION REPORT
NL INDUSTRIES - NALCON DIVISION
SAYREVILLE, NEW JERSEY
VOLUME 1 OF 2

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-9009-10
CONTRACT NO. 68-01-7346

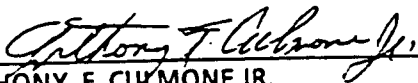
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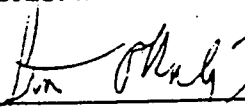
ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

MARCH 29, 1991

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY:


ANTHONY F. CULMONE JR.
PROJECT MANAGER


STEVEN OKULEWICZ
SITE MANAGER

REVIEWED/APPROVED BY:


RONALD M. NAMAN
FIS OFFICE MANAGER

Ref. No. 4 p. 349
ATTACHMENT W-1

PART IV: HAZARD ASSESSMENT

GROUNDWATER ROUTE

1. Describe the likelihood of a release of contaminant(s) to the groundwater as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence.

There has been an observed release of toluene to groundwater at the site. Groundwater sampling was conducted by BCM Eastern Inc. on May 20, 1986, October 5, 1987 and September 15, 1988. Analytical results of the downgradient water samples collected in the southwest corner of the facility contained concentrations of toluene that range from 11,300 micrograms per liter (ug/L) to 409,000 ug/L. These groundwater samples were taken from monitoring wells in the vicinity of the toluene storage tanks (MW-1 and MW-2). Groundwater samples previously collected by BCM from monitoring wells upgradient and in the northeastern portion of the site contained 11 ug/L to 23 ug/L of toluene. Analysis of soil samples from a dry well on site, collected in June 1990, indicated the continued presence of toluene at 43,000 ug/kg and methylene chloride at 15,800 ug/kg.

Ref. Nos. 12, pp. 12-17, and 12-18; 16, pp. 16-30 through 16-46; 17; 19, pp. 19-2 through 19-6 and pp. 19-22 through 19-27

2. Describe the aquifer of concern; include information such as depth, thickness, geologic composition, areas of karst terrain, permeability, overlying strata, confining layers, interconnections, discontinuities, depth to water table, groundwater flow direction.

Middlesex County lies within two major physiographic provinces, the Atlantic Coastal Plain and the Piedmont Province. The site is located within the Atlantic Coastal Plain and is approximately 10 feet above sea level in elevation. The site is immediately underlain by soil known as Urban Land and the Cape May Formation. Urban Land consists of highly permeable loamy sand of variable thickness. In this locality, 80 percent of the surface of the land is covered with industrial plants or other buildings and fill material has been used to build up the topography of the wetland areas in past years. The Cape May Formation consists of pinkish-yellow, fine- to medium-grained quartz sand with some small pebbles of quartz and ironstone. This formation is also variable in thickness and belongs to the Quaternary Period of the Cenozoic Era.

Beneath this sand lies the Raritan and Magothy Formations, which are part of the Potomac-Raritan-Magothy System. Two aquifers of concern are found within these formations and generally consist of unconsolidated sands and gravels that belong to the Cretaceous Period of the Mesozoic Era. From the top to the bottom, this system consists of seven members which are identified as the: Amboy Stoneware Clay, Old Bridge Sand, South Amboy Fire Clay, Sayreville Sand, Woodbridge Clay, Farrington Sand, and the Raritan Fire Clay. Of these seven members, the Old Bridge Sand and the Farrington Sand are the main aquifers in Middlesex County and are therefore the aquifers of concern. These aquifers provide the largest amounts of groundwater for the county and have high coefficients of permeability that range from 1,000 to 1,500 gallons per day per square foot. They are separated from each other by an upper layer of the South Amboy Fire Clay, a middle layer of the Sayreville Sand, and a lower unit of the Woodbridge Clay. These intervening layers between the two aquifers serve as efficient aquicludes and are greater than 100 feet in combined thickness. The permeability of the Woodbridge Clay and South Amboy Fire Clay confining layers is less than 10^{-7} cm/sec.

Ref. No. 4 p. 350
ATTACHMENT W-2

The Old Bridge Sand has a permeability of 10^{-3} to 10^{-5} cm/sec and a hydraulic conductivity of 134 ft/day. It is also the most productive and intensively developed aquifer in Middlesex County. It extends from Raritan Bay near South Amboy and southwest into Jamesburg. The Old Bridge Sand is 50 to 110 feet thick and has a gentle southeast dip; beneath the site, this formation is approximately 60 feet thick. It is composed of a well sorted fine sand to coarse sand or fine gravel with local interbeds of light to dark colored clayey silts that in combination are capable of storing and transmitting large quantities of water, on the order of approximately 1 million gallons per day for each square mile of aquifer. The recharge area for this formation is within the site boundary. The Perth Amboy Water Works, South Amboy, and Duhernal Water Supply plants are located southeast, northeast, and north of the site respectively. Artificial recharge lakes to the Old Bridge Formation have been constructed southeast of the site for the Perth Amboy Water Works to supply potable water. The depth to the Old Bridge aquifer is approximately 4 to 6 feet. Hydrologic interconnections exist between overlying units and the Old Bridge aquifer.

Generally, below the Old Bridge Sand lies the Amboy Stoneware Clay and the Sayreville Sand; however, in the vicinity of the site the Amboy Stoneware Clay is absent. The Sayreville Sand member occurs beneath the site at a depth of approximately 60 feet and is 10-feet-thick. It consists of fine white, micaceous sand, some fine- to coarse-grained white sand, and it may contain clay and arkosic sand beds. It has an estimated permeability of 10^{-3} to 10^{-5} cm/sec. This formation is also discontinuous and no wells are known to be drawing water from this aquifer. The Sayreville Sand is not a major water bearing unit.

Below the Sayreville Sand lies the Woodbridge Clay. This clay consists of a thin to thick bedded sequence of micaceous silts and clays with nodules of lignite, pyrite, and siderite. The Woodbridge Clay is 50 to 90 feet thick, laterally continuous and serves as an aquitard to underlying formations. It has an estimated permeability of less than 10^{-7} cm/sec. Below the Woodbridge Clay is another major aquifer known as the Farrington Sand.

The Farrington Sand Aquifer is composed of a medium- to coarse-grained sand that has lignite, pyrite, local beds of clay, and occurs at a depth of approximately 150 feet. It ranges in thickness from 75 to 129 feet in Middlesex County, but is approximately 104 feet in thickness in Sayreville and laterally continuous. It has an estimated permeability of 10^{-3} to 10^{-5} cm/sec and a hydraulic conductivity of 134 to 201 ft/day. The Farrington Sand is an alternative water source, although water is drawn from both the Old Bridge and Farrington Aquifers and mixed at distribution by various water companies. The Farrington Sand Aquifer has a gentle dip to the southeast and is also capable of storing and transmitting large quantities of water, on the order of approximately 2.5 million gallons per day for each square mile of aquifer. The Farrington Sand Aquifer receives recharge from leakage of the overlying Old Bridge Sand.

Beneath the Farrington Sand lies the Raritan Fire Clay, which serves as another aquitard immediately above the bedrock. The Raritan Fire Clay has an estimated thickness of 30 to 90 feet and can be blue, brown, grey, or red in color.

The depth to Triassic aged Brunswick shale bedrock of the Passaic Formation in the vicinity of the site is approximately 281 feet.

Groundwater in the vicinity of the site is generally found at a depth of 4 to 6 feet below the ground where it flows in a southwest direction towards Tennent Brook. The Perth Amboy well field is located southeast of the site and high pumping from this field could change groundwater flow direction. There are no drinking water wells downgradient between the site and Tennent Brook.

In Middlesex County, groundwater is affected by salt water intrusion that is the result of excessive withdrawals of groundwater from the Old Bridge and Farrington aquifers. These aquifers have been designated as "critical water supply area" by the NJDEP's Bureau of Water Allocation and the Division of Water Resources. There are more than 8,000 wells tapping groundwater within Middlesex County, the majority of which are used for domestic purposes.

Ref. Nos. 12(p. 12-7, 12-17 to 12-18), 19, 20, 21, 22, 24, 25, 26, 28, 29

ATTACHMENT

W-3
224. No. 4 p. 351

ATTACHMENT X

GROUND WATER
MONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION
(One form must be completed for each well)

Name of Permittee: ESSEX CHEMICAL CORPORATION
Name of Facility: ESSEX SAYERVILLE BOROUGH FACILITY
Location: SAYERVILLE, N.J.
NJPDES Permit No: N.A.

ENGINEER'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section (609-984-6831):
This number must be permanently affixed to the well casing.

Owner's Well Number (As shown on the application or plans):

Well Completion Date:

Distance from Top of Casing (cap off) to ground surface (one-hundredth of a foot):

Total Depth of Well (one-tenth of a foot):

Depth to Top of Screen From Top of Casing (one-tenth of a foot):

Screen Length (feet):

Screen or Slot Size:

Screen Material:

Casing Material: (PVC, Steel or Other-Specify):

Casing Diameter(Inches):

Static Water Level From Top of Casing at The Time of Certification(one-hundredth of a foot):

Yield (Gallons per Minute):

Length of time Well Pumped or Bailed:

Lithologic Log:

OW-15

6/21/83

0.0

8.0

2.0

5.0

N.A.

N.A.

PVC

3.0 I.D.

1.31 (9/21/88)

N.A.

N.A. Hours

Minutes

ATTACH ON BACK

AUTHENTICATION:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitted false information including the possibility of fine and imprisonment.

Professional Engineer's Signature

Professional Engineer's Name
(Please type or print)

Professional Engineer's License #

SEAL

ATTACHMENT X-1

Ref. No. 4 p. 353

GROUND WATER

MONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION
(One form must be completed for each well)

Name of Permittee: ESSEX CHEMICAL CORPORATION
 Name of Facility: ESSEX SAYERVILLE BOROUGH FACILITY
 Location: SAYERVILLE, N.J.
 NJDEP Permit No: _____

ENGINEER'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section (609-984-6831):
 This number must be permanently affixed to the well casing.

Owner's Well Number (As shown on the application or plans):

Well Completion Date:

Distance from Top of Casing (cap off) to ground surface (one-hundredth of a foot):

Total Depth of Well (one-tenth of a foot):

Depth to Top of Screen From Top of Casing (one-tenth of a foot):

Screen Length (feet):

Screen or Slot Size:

Screen Material:

Casing Material: (PVC, Steel or Other-Specify):

Casing Diameter(Inches):

Static Water Level From Top of Casing at The Time of Certification(one-hundredth of a foot):

Yield (Gallons per Minute):

Length of time Well Pumped or Bailed:

Lithologic Log:

DW-1D
6/21/83
0.00
37.0
29.0
8.0
N.A.
N.A.
PVC
3.0 ID
1.93 (9/21/88)
N.A.
N.A. Hours Minutes
 ATTACH ON BACK

AUTHENTICATION:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitted false information including the possibility of fine and imprisonment.

 Professional Engineer's Signature

 Professional Engineer's Name
 (Please type or print)

SEAL

 Professional Engineer's License #

ATTACHMENT 4-2

Ref. No. 4 p. 354

GROUND WATERMONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION

(One form must be completed for each well)

Name of Permittee: ESSEX CHEMICAL CORPORATION
 Name of Facility: ESSEX SAYERVILLE BOROUGH FACILITY
 Location: SAYERVILLE, N.J.
 NJDEP Permit No: N.A.

ENGINEER'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section (609-984-6831):
 This number must be permanently affixed to the well casing.

Owner's Well Number (As shown on the application or plans):

Well Completion Date:

Distance from Top of Casing (cap off) to ground surface (one-hundredth of a foot):

Total Depth of Well (one-tenth of a foot):

Depth to Top of Screen From Top of Casing (one-tenth of a foot):

Screen Length (feet):

Screen or Slot Size:

Screen Material:

Casing Material: (PVC, Steel or Other-Specify):

Casing Diameter (Inches):

Static Water Level From Top of Casing at The

Time of Certification (one-hundredth of a foot):

Yield (Gallons per Minute):

Length of time Well Pumped or Bailed:

Lithologic Log:

OW-25

6/15/83

2.77

16.5

4.5

10.0

N.A.

N.A.

PVC

3.0 I.D.

4.56 (9/21/88)

NA

NA Hours

Minutes

ATTACH ON BACK

AUTHENTICATION:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitted false information including the possibility of fine and imprisonment.

Professional Engineer's Signature

Professional Engineer's Name
 (Please type or print)

SEAL

Professional Engineer's License #

ATTACHMENT X-3

Ref. No. 4 p. 355

GROUND WATER

MONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION
(One form must be completed for each well)

Name of Permittee: ESSEX CHEMICAL CORPORATION
 Name of Facility: ESSEX SAYERVILLE BOROUGH FACILITY
 Location: SAYERVILLE, NJ
 NJDES Permit No: N.A.

ENGINEER'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water
 Allocation Section (609-984-6831):
 This number must be permanently affixed to the
 well casing.

Owner's Well Number (As shown on the application
 or plans):

Well Completion Date:
 Distance from Top of Casing (cap off) to ground
 surface (one-hundredth of a foot):
 Total Depth of Well (one-tenth of a foot):
 Depth to Top of Screen From Top of Casing
 (one-tenth of a foot):
 Screen Length (feet):
 Screen or Slot Size:
 Screen Material:
 Casing Material: (PVC, Steel or Other-Specify):
 Casing Diameter (Inches):
 Static Water Level From Top of Casing at The
 Time of Certification (one-hundredth of a foot):
 Yield (Gallons per Minute):
 Length of time Well Pumped or Bailed:
 Lithologic Log:

OW-35
6/16/83
2.69
14.0
4.5
10.0
NA
NA
PVC
3.0
6.25 (9/21/88)
NA
NA Hours NA Minutes
 ATTACH ON BACK

AUTHENTICATION:

I certify under penalty of law that I have personally examined and am
 familiar with the information submitted in this document and all attach-
 ments and that, based on my inquiry of those individuals immediately
 responsible for obtaining the information, I believe the submitted
 information is true, accurate and complete. I am aware that there are
 significant penalties for submitted false information including the
 possibility of fine and imprisonment.

Professional Engineer's Signature

Professional Engineer's Name
 (Please type or print)

SEAL

Professional Engineer's License #

ATTACHMENT

Ref. No. 4 p. 356

GROUND WATER

MONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION
(One form must be completed for each well)

Name of Permittee: ESSEX CHEMICAL CORPORATION
 Name of Facility: ESSEX SAYERVILLE BOROUGH FACILITY
 Location: SAYERVILLE, NJ
 NJDES Permit No: NA

ENGINEER'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section (609-984-6831):
 This number must be permanently affixed to the well casing.

Owner's Well Number (As shown on the application or plans):

Well Completion Date:

Distance from Top of Casing (cap off) to ground surface (one-hundredth of a foot):

Total Depth of Well (one-tenth of a foot):

Depth to Top of Screen From Top of Casing (one-tenth of a foot):

Screen Length (feet):

Screen or Slot Size:

Screen Material:

Casing Material: (PVC, Steel or Other-Specify):

Casing Diameter (Inches):

Static Water Level From Top of Casing at The Time of Certification (one-hundredth of a foot):

Yield (Gallons per Minute):

Length of time Well Pumped or Bailed:

Lithologic Log:

OW-3D
6/16/83
2.90
25.5
23.0
5.0
NA
NA
PVC
3.0 ID
9.10 (9/21/88)
NA
NA Hours Minutes
 ATTACH ON BACK

AUTHENTICATION:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitted false information including the possibility of fine and imprisonment.

Professional Engineer's Signature

Professional Engineer's Name
 (Please type or print)

SEAL

Professional Engineer's License #

ATTACHMENT X-5
 Ref. No. 4 p. 357

GROUND WATER
MONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION
(One form must be completed for each well)

Name of Permittee: ESSEX CHEMICAL CORPORATION
Name of Facility: ESSEX SAYERVILLE BOROUGH FACILITY
Location: SAYERVILLE, NJ
NJDES Permit No: NA

ENGINEER'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section (609-984-6831):
This number must be permanently affixed to the well casing.

Owner's Well Number (As shown on the application or plans):

Well Completion Date:

Distance from Top of Casing (cap off) to ground surface (one-hundredth of a foot):

Total Depth of Well (one-tenth of a foot):

Depth to Top of Screen From Top of Casing (one-tenth of a foot):

Screen Length (feet):

Screen or Slot Size:

Screen Material:

Casing Material: (PVC, Steel or Other-Specify):

Casing Diameter(Inches):

Static Water Level From Top of Casing at The Time of Certification(one-hundredth of a foot):

Yield (Gallons per Minute):

Length of time Well Pumped or Bailed:

Lithologic Log:

OW-45

6/17/83

2.75

18.0

7.5

10.0

NA

NA

PVC

3.0 ID

7.75 (9/21/88)

NA

NA Hours

Minutes

ATTACH ON BACK

AUTHENTICATION:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitted false information including the possibility of fine and imprisonment.

Professional Engineer's Signature

Professional Engineer's Name
(Please type or print)

Professional Engineer's License #

SEAL

ATTACHMENT X-6
Ref. No. 4 p. 358

GROUND WATER
MONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION
 (One form must be completed for each well)

Name of Permittee: ESSEX CHEMICAL CORPORATION
 Name of Facility: ESSEX SAYERVILLE BOROUGH FACILITY
 Location: SAYERVILLE, NJ
 NJPDES Permit No: NA

ENGINEER'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section (609-984-6831):
 This number must be permanently affixed to the well casing.

Owner's Well Number (As shown on the application or plans):

Well Completion Date:

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Total Depth of Well (one-tenth of a foot):

Depth to Top of Screen From Top of Casing (one-tenth of a foot):

Screen Length (feet):

Screen or Slot Size:

Screen Material:

Casing Material: (PVC, Steel or Other-Specify):

Casing Diameter(Inches):

Static Water Level From Top of Casing at The Time of Certification(one-hundredth of a foot):

Yield (Gallons per Minute):

Length of time Well Pumped or Bailed:

Lithologic Log:

OW-4D
6/17/83
2.95
26.0
23.5
5.0
NA
NA
PVC
3.0 ID
7.52 (9/21/88)
NA
NA Hours Minutes
 ATTACH ON BACK

AUTHENTICATION:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitted false information including the possibility of fine and imprisonment.

 Professional Engineer's Signature

 Professional Engineer's Name
 (Please type or print)

 Professional Engineer's License #

SEAL

Ref. No. 4 p. 359
 X-7
 DOCUMENT

GROUND WATERMONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION

(One form must be completed for each well)

Name of Permittee: ESSEX CHEMICAL CORPORATION
 Name of Facility: ESSEX SAYERVILLE BOROUGH FACILITY
 Location: SAYERVILLE NJ
 NJPDES Permit No: NA

ENGINEER'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section (609-984-6831):
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Owner's Well Number (As shown on the application or plans):

Well Completion Date:

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Total Depth of Well (one-tenth of a foot):

Depth to Top of Screen From Top of Casing (one-tenth of a foot):

Screen Length (feet):

Screen or Slot Size:

Screen Material:

Casing Material: (PVC, Steel or Other-Specify):

Casing Diameter(Inches):

Static Water Level From Top of Casing at The

Time of Certification (one-hundredth of a foot):

Yield (Gallons per Minute):

Length of time Well Pumped or Bailed:

Lithologic Log:

OW-106 S

3/23/79

± .5'

± 14'

± 4'

± 2'

NA

PVC

PVC

2" ID

1.56 (9/21/88)

NA

NA Hours

Minutes

ATTACH ON BACK

AUTHENTICATION:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitted false information including the possibility of fine and imprisonment.

Professional Engineer's Signature

Professional Engineer's Name
 (Please type or print)

SEAL

Professional Engineer's License #

ATTACHMENT

Ref. No. 4 P. 360

GROUND WATER
MONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION
 (One form must be completed for each well)

Name of Permittee: ESSEX CHEMICAL CORPORATION
 Name of Facility: ESSEX SAYERVILLE BOROUGH FACILITY
 Location: SAYERVILLE, N.J.
 NJPDES Permit No: NA

ENGINEER'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section (609-984-6831):
 This number must be permanently affixed to the well casing.

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Total Depth of Well (one-tenth of a foot):

Depth to Top of Screen From Top of Casing (one-tenth of a foot):

Screen Length (feet):

Screen or Slot Size:

Screen Material:

Casing Material: (PVC, Steel or Other-Specify):

Casing Diameter(Inches):

Static Water Level From Top of Casing at The Time of Certification (one-hundredth of a foot):

Yield (Gallons per Minute):

Length of time Well Pumped or Bailed:

Lithologic Log:

OW-106 D

3/23/79

±3'

±17'

±15'

±2'

NA

PVC

PVC

2" ID

2.16 (9/21/88)

NA

NA Hours

Minutes

ATTACH ON BACK

AUTHENTICATION:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitted false information including the possibility of fine and imprisonment.

 Professional Engineer's Signature

 Professional Engineer's Name
 (Please type or print)

 Professional Engineer's License #

SEAL

ATTACHMENT X-9

Ref. No. 4 p.361

GROUND WATER
MONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION
(One form must be completed for each well)

Name of Permittee: ESSEX CHEMICAL CORPORATION
Name of Facility: ESSEX SAYERVILLE BOROUGH FACILITY
Location: SAYERVILLE, NJ
NJDES Permit No: NA

ENGINEER'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section (609-984-6831):
This number must be permanently affixed to the well casing.

Owner's Well Number (As shown on the application or plans):

Well Completion Date:

Distance from Top of Casing (cap off) to ground surface (one-hundredth of a foot):

Total Depth of Well (one-tenth of a foot):

Depth to Top of Screen From Top of Casing (one-tenth of a foot):

Screen Length (feet):

Screen or Slot Size:

Screen Material:

Casing Material: (PVC, Steel or Other-Specify):

Casing Diameter(Inches):

Static Water Level From Top of Casing at The

Time of Certification(one-hundredth of a foot):

Yield (Gallons per Minute):

Length of time Well Pumped or Bailed:

Lithologic Log:

OLW-107 S

3/23/79

±.5'

± 13.5'

± 4'

± 9.5'

NA

PVC

PVC

2" ID

6.10 (9/21/88)

NA

NA Hours

Minutes

ATTACH ON BACK

AUTHENTICATION:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitted false information including the possibility of fine and imprisonment.

Professional Engineer's Signature

Professional Engineer's Name
(Please type or print)

SEAL

Professional Engineer's License #

ATTACHMENT

X-10

Ref. No. 4 p. 362

GROUND WATER
MONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION
 (One form must be completed for each well)

Name of Permittee: ESSEX CHEMICAL CORPORATION
 Name of Facility: ESSEX SAYERVILLE BOROUGH FACILITY
 Location: SAYERVILLE, NJ
 NJPDES Permit No: NA

ENGINEER'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section (609-984-6831):
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Total Depth of Well (one-tenth of a foot):

Depth to Top of Screen From Top of Casing (one-tenth of a foot):

Screen Length (feet):

Screen or Slot Size:

Screen Material:

Casing Material: (PVC, Steel or Other-Specify):

Casing Diameter(Inches):

Static Water Level From Top of Casing at The Time of Certification(one-hundredth of a foot):

Yield (Gallons per Minute):

Length of time Well Pumped or Bailed:

Lithologic Log:

OW- III S
3/23/79
± 2'
± 9.5'
± 4.5'
± 4'
NA
PVC
PVC
2" ID
2.03 (9/21/88)
NA
NA Hours NA Minutes
 ATTACH ON BACK

AUTHENTICATION:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitted false information including the possibility of fine and imprisonment.

Professional Engineer's Signature

Professional Engineer's Name
 (Please type or print)

SEAL

Professional Engineer's License #

ATTACHMENT X-11
 Ret. NO. 4 P. 363

GROUND WATER
MONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION
(One form must be completed for each well)

Name of Permittee: ESSEX CHEMICAL CORPORATION
Name of Facility: ESSEX SAYERVILLE BOROUGH FACILITY
Location: SAYERVILLE, NJ
NJDEP Permit No: NA

ENGINEER'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Water Allocation Section (609-984-6831):
This number must be permanently affixed to the well casing.

Owner's Well Number (As shown on the application or plans):

Well Completion Date:

Distance from Top of Casing (cap off) to ground surface (one-hundredth of a foot):

Total Depth of Well (one-tenth of a foot):

Depth to Top of Screen From Top of Casing (one-tenth of a foot):

Screen Length (feet):

Screen or Slot Size:

Screen Material:

Casing Material: (PVC, Steel or Other-Specify):

Casing Diameter (Inches):

Static Water Level From Top of Casing at The Time of Certification (one-hundredth of a foot):

Yield (Gallons per Minute):

Length of time Well Pumped or Bailed:

Lithologic Log:

04-111 D
3/23/79
± .5'
± 20'
± 18'
± 2'
NA
PVC
PVC
2" ID
1.62 (9/21/88)
NA
NA Hours NA Minutes
ATTACH ON BACK

AUTHENTICATION:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitted false information including the possibility of fine and imprisonment.

Professional Engineer's Signature

Professional Engineer's Name
(Please type or print)

Professional Engineer's License #

SEAL

ATTACHMENT X-12
Ref. NO. 4 p.36

ATTACHMENT Y

Ref. No. 4 p. 365



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
ENFORCEMENT & REGULATORY SERVICES



COMPLIANCE EVALUATION INSPECTION
PUBLIC COMMUNITY WATER SUPPLY

DATE 11-14-89

GENERAL INFORMATION

PURVEYOR/ FACILITY Sayreville Borough Water Department
FILE LOCATION Sayreville Borough / Middlesex PW-ID # 121900#
MAILING ADDRESS 167 Main Street, Sayreville
ADMIN. Alvin Jolly 706-607-7065
BUSINESS Joseph Rudy
TELEPHONE # Admin.: 201-390-7000 Licensed Operators: T-3 W-3 Wayne Wallace
CONTACT Person: Rose Callahan 390-7060

FACILITY DESCRIPTION

SOURCES: descriptions, locations, capacities(mgd): 2 surface water intakes; 17 Wells
Bordentown WTP Wells A-H 0.5 MGD, I-1.0, L-.54, K-4.3, M-1.73
-not used in 5 years) Morgan WTP Wells P-1.3, Q-0.72, R-0.58, S-1.73
replacing motor, Wells in use BORDENTOWN - A, D, C, E, F
MORGAN - Q, R, S Est Tot Eff Cap: BORDENTOWN ≈ 11.6
MORGAN ≈ 4.8
TREATMENT: source, type, capacities(mgd): Bordentown + Morgan WTP - Aeration with potassium
permanganate, Pre-Cl₂(gas), Coagulation - (Alum), Ph adjustment(caustic),
Flocculation, sedimentation, pressure filtration, post Cl₂ + Ph
Est Tot Eff Cap: 8.0 M.G.D.

ATTACHMENT 11-1

FINISHED WATER STORAGE: descriptions, locations, capacities(mg):
Standpipes at Pulaski Ave. (outlook Ave.) 3.0 M.G.,
Ernstson Road - 3.0 MG, Bordentown Road - 0.475 MG
Raritan Street 5.0 M.G. 11.5 MG

EMERGENCY INTERCONNECTIONS: descriptions, available gallonage(mgd): 3 - Perth Amboy - 1-10",
1-16", 1-24" main; 3 - South Amboy 1-6", 1-8", 1-10" main;
2 - Old Bridge - 2 - 6" mains (never used). 1 - Middlesex Water
24" main (proposed) Est Tot Avail: unknown

AUXILIARY POWER: location, type, capabilities: Dual power feed from J.C.P. + L.
Waverly Please check their PWS - Ph
The Bordentown plant has a surface
water intake used intermittently. Also
I think we have to show the PWS as a surface
water intake

Vol. No. 4 P. 306



NJDEP - DIVISION OF WATER RESOURCES
PUBLIC COMMUNITY WATER SUPPLY INSPECTION



Page 2

DELIVERY INFORMATION

PLANT DELIVERED WATER (mud, month, year) Bordentown 4.7 July 88 0-2.3 November 88 Annual Average 5.413 MGD (88)
Max Morgan 2.9 July 88 Min M-1.4 February 88

BULK PURCHASES (provider, mud) Middlesex Water Comp 2 MGD for 1989

BULK SALES (customer, mud) South Amboy approx 12 MG/month

NUMBER OF SERVICES 10,700

MUNICIPALITIES SERVED (est. services in each) Sayreville, South Amboy (temporarily)

% METERED 99.9

TOTAL ESTIMATED POPULATION SERVED 39,000

CURRENT/RECENT WATER RESTRICTIONS None

NEW CONSTRUCTION (Project Numbers) 3 proposed, W-03-89-4013, W-05-89-4052, W-05-89-4034

DISTRIBUTION MAINS: Sizing 4" (min) to 18" (max)
Pressures 40 psi (min) to 105 psi (max)
Hydrants/Flushing Program approx 1000 / once a year

MONITORING & REPORTING

PARAMETER(S)	FREQUENCY REQUIRED	FREQUENCY PERFORMED	Source
A-280	2/year	2/yr 11-9-88, 5-9-89	distribution
Coliform	45/month	48 month	Source
Inorganics	1/year	1/yr 6-12-89	Source
Nitrate	1/year	1/yr 6-12-89	distribution
Trihalomethanes	4/year	5/89	Source
Organics	1/3 years	1/3 YRS 6/89	
Turbidity	Daily		
secondaries	1/3 YRS	1/3 YRS 6-12-89	Source
Radionuclides	quarterly / 4 yrs	quarter / 4 YRS 1986	Source

NAME OF LABORATORY LAB RESOURCES

ADDRESS 363 Old Hook Road, Westwood N.J. 07675

CERTIFICATION = 02046

COMPLIANCE EVALUATION

SOURCE DEFICIENCIES ① First stage storage tank at Bordentown has leaky flow meter. ② Well A needs new vent cap. ③ All well blow off lines must be capped or screened.

TREATMENT DEFICIENCIES ① Some backwash lines showing signs of wear

ATTACHMENT 4-2

Ref. No. 4 p. 367



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
ENFORCEMENT & REGULATORY SERVICES

COMPLIANCE EVALUATION INSPECTION
PUBLIC COMMUNITY WATER SUPPLY

no longer uses well
obtains water from
Perth Amboy.



Per
phone
consult
with Kathy

DATE 3/20/90 11/13/91

GENERAL INFORMATION

PURVEYOR/ FACILITY <u>SOUTH AMBOY WATER DEPARTMENT</u>	
FILE LOCATION <u>SOUTH AMBOY / MIDDLESEX</u>	PW-ID # <u>12200071</u>
MAILING ADDRESS <u>140 N. BROADWAY SOUTH AMBOY</u>	
ADMIN. <u>JOHN MASON</u>	REQUIRED T-2 LICENSES W-2
BUSINESS (301) TELEPHONE # Admin.: <u>724-1211</u>	RICHARD MUCITANIC W-4
Licensed Operators: <u>T-3</u>	

FACILITY DESCRIPTION

SOURCES: descriptions, locations, capacities(mgd): WELL #9A 0.65MGD, WELL #10 0.58MGD
WELL #8 1.44MGD. ALL LOCATED AT WTP.

ALL PUMPS LOCATED W/IN Est Tot Eff Cap: 2.67MGD

TREATMENT: source, type, capacities(mgd): DISINFECTION WELLS 9 & 10
PHADJUSTMENT WELLS 9 & 10
IRON REMOVAL BY FILTRATION PHADJUSTMENT, DISINFECTION
WELL #8 (NOT IN OPERATION) Est Tot Eff Cap: 1.23MGD

FINISHED WATER STORAGE: descriptions, locations, capacities(mg): STAND PIPE, CONCRETE
AVE 0.3MG, CLEARWELL AT WTP 0.35MG
Standpipe on Raritan 5.0mg - shared by South Amboy & Sayreville (future)
Est Tot Cap: 5.65

EMERGENCY INTERCONNECTIONS: descriptions, available gallonage(mgd): 2- 8" CONNECTIONS
WITH SAYREVILLE 1- 12" CONNECTION W/ PERTH AMBOY.

Est Tot Avail: ~ 1 mgd

AUXILIARY POWER: location, type, capabilities: DUPL POWER LINES
(PLANS FOR PORTABLE GENERATOR AT BOOSTER PUMPS)

ATTACHMENT 1-3

Ref. No. 40.2608



NJDEP - DIVISION OF WATER RESOURCES
PUBLIC COMMUNITY WATER SUPPLY INSPECTION



Page 2

DELIVERY INFORMATION

PLANT DELIVERED WATER (mgd, month, year)	JAN 89 Max 0.86 mgd	SEPT Min 0.72 mgd	Annual Average	1987 0.79 mgd
BULK PURCHASES (provider, mgd)	PERTH AM. 304 0.4 mgd			
BULK SALES (customer, mgd)	NONE			
NUMBER OF SERVICES	2600		% METERED	100%
MUNICIPALITIES SERVED (est. services in each)	SOUTH AM. 304, 2600			
			TOTAL ESTIMATED POPULATION SERVED	8500
CURRENT/RECENT WATER RESTRICTIONS	CRITICAL AREA I RESTRICTIONS			
NEW CONSTRUCTION (Project Numbers)	NONE			
DISTRIBUTION MAINS:				
Sizing	7" (min)	to 12" (max)		
Pressures	70 (min)	to 80 (max)		
Hydrants/Flushing Program	2/yr			

MONITORING & REPORTING

PARAMETER(S)	FREQUENCY REQUIRED	FREQUENCY PERFORMED
P 250	2/yr	2/yr 11/89
Coliform	12/mo	12/mo
Inorganics	1/3 yrs	1/3 yrs 6/88
Nitrate	"	"
Trihalomethanes	"	"
Organics	"	"
Turbidity	"	"
2° RES.	1/3 yrs	LATE
RADS	1/4 yrs	COMPLETE IN 80

NAME OF LABORATORY NJ LABS CERTIFICATION # 12128
ADDRESS HINDENSON LABS 15083

COMPLIANCE EVALUATION

SOURCE DEFICIENCIES NONE

TREATMENT DEFICIENCIES NONE ATTACHMENT 7-4

Ref. No. 4 P. 369



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
ENFORCEMENT & REGULATORY SERVICES



COMPLIANCE EVALUATION INSPECTION
PUBLIC COMMUNITY WATER SUPPLY

DATE 7/25/90

GENERAL INFORMATION	
PURVEYOR/ FACILITY	<u>PERTH AMBOY DEPT OF MUNICIPAL UTILITIES</u>
FILE LOCATION	<u>PERTH AMBOY MIDDLESEX</u>
MAILING ADDRESS	<u>260 HIGH ST, PERTH AMBOY</u>
ADMIN.	<u>MARTIN LANGENONAL</u>
BUSINESS	<u>201</u>
TELEPHONE #	<u>Admin.: 026 0290</u>
Licensed Operators:	<u>T-4</u>
REQUIRED LICENSES	<u>T-4</u> <u>W-3</u>
	<u>M. LANGENONAL</u> <u>W-4</u>
PW-ID #	<u>12160021</u>

FACILITY DESCRIPTION

SOURCES: descriptions, locations, capacities(mgd): WELL #1 @ 1.7 MG, WELL #5 @ 0.5 MG
WELL #6 @ 1.0 MG, WELL #7 @ 1.0 MG, WELL #8 @ 1.0 MG
ALL LOCATED AT THE PLANT IN CHRYSLER

Est Tot Eff Cap: 5.2 MG

TREATMENT: source, type, capacities(mgd): PRECIPITATION, pH ADJUSTMENT
FLOCCULATION/SEDIMENTATION, FILTRATION, DISINFECTION

Est Tot Eff Cap: 6.0 MG

FINISHED WATER STORAGE: descriptions, locations, capacities(mg): FLORINA GROVE RD
RESERVOIR 41 MG, ALBERT ST STAND PIPE 1.0 MG

Est Tot Cap: 41 MG

EMERGENCY INTERCONNECTIONS: descriptions, available gallonage(mgd): MIDDLESEX WATER CO

Est Tot Avail: 40 MG

AUXILIARY POWER: location, type, capabilities: SEPARATE RIVER LINES TO PLANT



NJDEP - DIVISION OF WATER RESOURCES
PUBLIC COMMUNITY WATER SUPPLY INSPECTION



Page 2

DELIVERY INFORMATION

PLANT DELIVERED WATER (mgd, month, year)	Max 6.46 mgd MARCH	Min 4.36 mgd DEC.	Annual Average 1989 5.43
BULK PURCHASES (provider, mgd)	NONE		
BULK SALES (customer, mgd)	SAYREVILLE, 5 AMBOY, OAKBRIDGE		
NUMBER OF SERVICES	8000	% METERED	100%
MUNICIPALITIES SERVED (est. services in each)	PERTH AMBOY	OAKBRIDGE	SAYREVILLE
	7700	160	140
	TOTAL ESTIMATED POPULATION SERVED 40,000		
CURRENT/RECENT WATER RESTRICTIONS	NONE		
NEW CONSTRUCTION (Project Numbers)	PLANT EXPANSION W-02-88-3815		
DISTRIBUTION MAINS:	Sizing 4 (min) to 30 (max)	Pressures 35 (min) to 55 (max)	Hydrants/Flushing Program 2/YR

MONITORING & REPORTING

PARAMETER(S)	FREQUENCY REQUIRED	FREQUENCY PERFORMED
A 2 FC	2/YR	2/YR 6/19/0
Coliform	90/100	56/100
Inorganics	1/3 YRS	1/3 YRS AVE. 1990
Nitrate		
Trihalomethanes	EXPECTEDLY	4/YR 1/20 YRS COMPLETE
Organics	N/A	N/A
Turbidity	DAILY	DAILY
RAAS	4/4 YRS	DUE TO BEGIN THIS YEAR
20 REGS	1/3 YRS	1/3 YRS 4/25/90

NAME OF LABORATORY INTECH BIO LABS CERTIFICATION # 12427
ADDRESS 158 TICES LANE E BRUNSWICK NJ 08816

COMPLIANCE EVALUATION

SOURCE DEFICIENCIES WELL 5 W/BROKEN FLOW METER WELL 7 IS VIBRATING - THESE TWO DEFICIENCIES WERE CITED IN A PREVIOUS INSPECTION AND WERE NOT CORRECTED.

TREATMENT DEFICIENCIES EXCESSIVE SOLIDS FLUXING OVER VIEWS OF 2 CHAR. FIBER FILTERS C W D WERE NOT OPERATIONAL

ATTACHMENT 4-6
Ref. No. 4 P. 371

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
ENFORCEMENT & REGULATORY SERVICESCOMPLIANCE EVALUATION INSPECTION
PUBLIC COMMUNITY WATER SUPPLY

DATE 9-19-89

GENERAL INFORMATION

PURVEYOR/FACILITY South River Water Department (Whitehead Ave.)
FILE LOCATION South River / Middlesex County PW-ID # 1223001
MAILING ADDRESS 33 Gordon Street, South River 08882
ADMIN. Robert De Santis
BUSINESS 257-9051
TELEPHONE # Admin.: 254-5733 Plant Licensed Operators: T - 3 W - 3
REQUIRED T - 2
LICENSES W - 2
Z. BOMBA

FACILITY DESCRIPTION

SOURCES: descriptions, locations, capacities(mgd): 3 Groundwater Wells on site - Whitehead
Well #2 - 1.40, Well #5 - 1.40, Well #6 - 1.15

NOTE: WELLS ARE ALL LINED

Est Tot Eff Cap: 3.95

TREATMENT: source, type, capacities(mgd): Chlorination (gas), ph adjustment
(lime), filtration (green sands and anthracite)

Est Tot Eff Cap: 3.95

FINISHED WATER STORAGE: descriptions, locations, capacities(mg): Ground Storage Tank w/booster
pumps at plant site - 2.0mg, Elevated Tank on Appelby Ave
0.5mg

Est Tot Cap: 2.5

EMERGENCY INTERCONNECTIONS: descriptions, available gallonage(mgd): ONE 6" connection
on Cleveland Ave, One 6" connection on Mitchell Ave,
Both connections with East Brunswick Water Co.

Est Tot Avail: 2.0

AUXILIARY POWER: location, type, capabilities: Diesel Generators - 2 units,



NJDEP - DIVISION OF WATER RESOURCES
PUBLIC COMMUNITY WATER SUPPLY INSPECTION



DELIVERY INFORMATION

PLANT DELIVERED WATER (mgd month/year) Max	1.785 July 88	Min	1.139 Feb-88	Annual Average	1.5 mgd
BULK PURCHASES (provider, mgd)	None				
BULK SALES (customer, mgd)	None				
NUMBER OF SERVICES	4245			% METERED	100%
MUNICIPALITIES SERVED (est. services in each)	50 RIVER TWP				
				TOTAL ESTIMATED POPULATION SERVED	16,000
CURRENT/RECENT WATER RESTRICTIONS	None				
NEW CONSTRUCTION (Project Numbers)	None				
DISTRIBUTION MAINS:					
Sizing	4"	(min)	to	20"	(max)
Pressures	40 PSI	(min)	to	100 PSI	(max)
Hydrants/Flushing Program	2/yr				

MONITORING & REPORTING

PARAMETER(S)	FREQUENCY REQUIRED	FREQUENCY PERFORMED
A 280	2/yr	2/yr 3/14/88
Coliform	18/mo	12/mo
Inorganics	1/3 yrs	1/3 yrs 4/29/88
Nitrate	1/3 yrs	1/3 yrs 4/29/88
Trihalomethanes	QUARTERLY	QUARTERLY FIRST 3 QUARTERS
Organics	N/A	
Turbidity	N/A	
* VOC's	1/3 yrs QTRLY N/A 280 SUB	FIRST QTR QTRLY 1988
20 REG'S	1/3 yrs	1/3 yrs 4/29/88
BAD. DRINK.	1/4 yrs	BEFORE NEW BOND 1989-90

PLANT
DIST.
PLANT
PLANT
DIST.

NAME OF LABORATORY New Jersey Laboratories CERTIFICATION # 17128
ADDRESS 277-226 Easton Ave, New Brunswick N.J. 08903

COMPLIANCE EVALUATION

SOURCE DEFICIENCIES None

TREATMENT DEFICIENCIES None

ATTACHMENT

Ref No. 40373

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
ENFORCEMENT & REGULATORY SERVICESCOMPLIANCE EVALUATION INSPECTION
PUBLIC COMMUNITY WATER SUPPLYDATE 8/3/90

GENERAL INFORMATION

PURVEYOR/ FACILITY <u>OLDBRIDGE MUA</u>	
FILE LOCATION <u>OLDBRIDGE / MIDDLESEX</u>	PW-ID # <u>1209002</u>
MAILING ADDRESS <u>15 THROCKMORTON LN OLDBRIDGE</u>	
ADMIN. <u>THOMAS O'MALLEY</u>	REQUIRED T-3 LICENSES W-4
BUSINESS TELEPHONE # Admin.: <u>201 679 8441</u>	Licensed Operators: T-4 <u>JOHN MURPHY</u> W-4

FACILITY DESCRIPTION

* SOURCES: descriptions, locations, capacities(mgd): LAURENCE HARBOR Well #8 @ .403 mgd
Well #9 @ .936 mgd / OLDBRIDGE Well #6 @ .974, Well #10 @ .936
Well #11 @ 1.0 mgd, Well #12 @ 1.4 mgd / BROWNSTOWN Well #2 @ .936, Well #3
@ 1.73 mgd, Well #4 @ 1.73 mgd Well #1 @ 1.0 mgd Est Tot Eff Cap: 11.05 mgd

TREATMENT: source, type, capacities(mgd): AERATION, FLOCCULATION, SEDIMENTATION
PH ADJUSTMENT, FILTRATION, DISINFECTION AT 3 PLANTS
LAURENCE HARBOR, OLDBRIDGE, BROWNSTOWN

Est Tot Eff Cap: 11.0 mgd

FINISHED WATER STORAGE: descriptions, locations, capacities(mg): SAYREXKES TANK 1.04 MG
RTE 35 @ 1.25 MG, OLDBRIDGE PLANT @ 2 MG RTE 576 @ 2 MG, HIGGINS RD
@ 3 MG, BROWNSTOWN PLANT @ 0.5 MG, DR. PLE AVE @ 2 MG

Est Tot Cap: 9.84 MG

EMERGENCY INTERCONNECTIONS: descriptions, available gailonage(mgd):

MIDDLESEX WATER @ @ 2 mgdEst Tot Avail: 2 mgdAUXILIARY POWER: location, type, capabilities: GENERATORS AT PLANTS

NOTE: WELLS 3, 2, 1, 6, 9, 10 AND 12 ARE ON USE

ATTACHMENT 4
Ref. NO. 4 P. 374



NJDEP - DIVISION OF WATER RESOURCES
PUBLIC COMMUNITY WATER SUPPLY INSPECTION



Page 2

DELIVERY INFORMATION

PLANT DELIVERED WATER (mgd.month.year) Max <u>6.58 MGd 7/89</u> Min <u>4.83 MGd 1/89</u> Annual Average <u>5.60 MGd 1989</u>	
BULK PURCHASES (provider.mgd) <u>MIDDLESEX CO WATER 2 MGd</u>	
BULK SALES (customer.mgd) <u>ABERDEEN TWP TO START OCT - MAY 90</u>	
NUMBER OF SERVICES <u>15,022</u>	% METERED <u>100%</u>
MUNICIPALITIES SERVED (est. services in each) <u>CHESBROUGH, LAURENCE HARBOR, ABERDEEN</u>	
TOTAL ESTIMATED POPULATION SERVED <u>53,000</u>	
CURRENT/RECENT WATER RESTRICTIONS <u>NONE</u>	
NEW CONSTRUCTION (Project Numbers) <u>NONE</u>	
DISTRIBUTION MAINS: Sizing <u>2"</u> (min) to <u>18"</u> (max) Pressures <u>25</u> (min) to <u>90</u> (max) Hydrants/Flushing Program <u>2/yr</u>	

MONITORING & REPORTING

PARAMETER(S)	FREQUENCY REQUIRED	FREQUENCY PERFORMED
<u>PH 280</u>	<u>2/yr</u>	<u>1st Round 6/90</u>
Coliform	<u>6.5/MO</u>	<u>97/MO</u>
Inorganics	<u>2/yr</u>	<u>1/yr 5/89</u>
Nitrate		
Trihalomethanes	<u>QUARTERLY</u>	<u>2nd yr 5/89</u>
Organics		
Turbidity		
<u>20's</u>	<u>1/3 yrs</u>	<u>1/yr 5/89</u>
<u>RD2</u>	<u>QUARTERLY/1 yrs</u>	<u>1st round 6/86</u>
<u>WCCP</u>	<u>QUARTERLY/5 yrs</u>	<u>1st round 10/83</u>

NAME OF LABORATORY NJ LABS CERTIFICATION # 12128
ADDRESS EASTON AVE, NEW BRUNSWICK

COMPLIANCE EVALUATION

ATTACHMENT 4-10

SOURCE DEFICIENCIES FLOW METERS BROKEN ON
WELLS 2, 3 AND 4

ATTACHMENT Z

New Jersey 1988 State Water Quality Inventory Report

A Report on the Status of Water Quality in New Jersey
Pursuant to the New Jersey Water Pollution Control Act
and Section 305(b) of the Federal Clean Water Act

State of New Jersey
Department of Environmental Protection
Division of Water Resources
Bureau of Water Quality Planning
Trenton, New Jersey

Thomas H. Kean, *Governor*
Richard Dewling, P.E., Ph.D., *Commissioner*
George G. McCann, P.E., *Director*

May, 1988

ATTACHMENT 2-1
Ref. No. 4 0.377

28. RARITAN RIVER

Watershed Description

The Raritan River, its tributaries, and branches drain an area totalling over 1100 square miles. The Raritan River basin is the largest river basin located entirely within New Jersey. The mainstem, 31 miles long, drains parts of Somerset, Union, Middlesex, and Monmouth Counties before emptying into the Raritan Bay. Tides affect this waterway to the Fieldsville Dam upstream of New Brunswick. The Delaware and Raritan Canal flows alongside the Raritan River from the confluence of the Millstone River to New Brunswick. Major tributaries to the Raritan are the North and South Branches, Millstone River, South River, Green Brook, and Lawrence Brook. The section of the Raritan basin reviewed here is the mainstem of the Raritan River from the confluence of the North and South Branches to Raritan Bay, and small tributaries. For the most part, this drainage area is densely populated, with the centers of population being Plainfield, New Brunswick, Perth Amboy, Edison, South Amboy, Sayreville, Bound Brook, Somerville, Manville, Piscataway, Metuchen, and Bridgewater. There are two low dams in the river, Fieldsville Dam and Calco Dam. Among the many small recreational lakes and ponds in this area are Watchung Lake, Surprise Lake, Spring Lake, and Green Brook Pond (all manmade).

The land use in this watershed is primarily urban/suburban, with industrial and commercial centers throughout. There are 73 NJPDES permitted discharges here, 12 of which are municipal and the remainder industrial/commercial. Fifteen discharges go to Raritan Bay and tributaries. Classifications of waters in the Lower Raritan River watershed are FW-2 Trout Maintenance, FW-2 Nontrout, and SE-1.

Water Quality Assessment

The Raritan River is currently monitored at three locations in the river. These locations are at Raritan, Manville, and from the Queens Bridge at South Bound Bridge.

The Raritan River at Raritan and Manville contains generally good water quality. At Manville conditions worsen to fair quality during the late spring-early summer period. The similar conditions at the two locations is exemplified in the water quality data collected between 1983 and 1987. Total phosphorus and fecal coliform often appear in elevated levels. Total phosphorus averaged .1 mg/l at both Raritan and Manville. Approximately 50 percent of all phosphorus values from the two stations were in excess of the recommended State criterion. Total inorganic nitrogen was greater than 2.0 mg/l in 15 percent of the samples from Raritan and 10 percent from Manville. Fecal coliform had geometric means of 132 and 158 MPN/100ml at Raritan and Manville, respectively. Fecal coliform violated State criterion in less than one-half of all samples collected at the two stations. Dissolved oxygen was above 4.0 mg/l in all samples from 1983 to 1987, while biochemical oxygen demand was generally under 3.0 mg/l.

Downstream at South Bound Brook ambient monitoring has detected fair water quality with conditions worsening in the summer period. The river here has experienced major changes in water quality within the past decade. In 1981 the Raritan River experienced very poor conditions during low flow periods. Extremely high nutrient concentrations and low dissolved oxygen saturation indicated a severely stressed stream. However, between 1981 to 1985 conditions improved in the river. While nutrients (phosphorus and nitrogen containing compounds) are still elevated, concentrations are one-third to one-half of those recorded in 1981. Total phosphorus values averaged .22 mg/l from 1983 to 1987, compared to .64 mg/l in 1981. Fecal coliform continues to be found at problematic levels, having a geometric mean of 752 MPN/100ml from 1983 to

1987. Dissolved oxygen appears to be adequate in this section of the river, but large diurnal fluctuations during warm weather are still expected. The significant improvements in the Raritan River at South Bound Brook can be attributed to the gradual reduction in discharge flows from the American Cyanamid facility. In 1985 the company's discharge was eliminated with flows transferred to the Somerset Raritan Valley SA treatment plant.

The NJDEP's Division of Science and Research has performed extensive work in the Raritan River to study the fate and transport of toxic substances in 1982 and 1983. The results of this study was thoroughly described in the 1982 and 1986 305(b) reports, but are summarized here. Water samples were analyzed for priority pollutants. Sediments were analyzed for priority pollutants as well as grain size. The water analyses showed that the volatile organics were the most frequently occurring organic compounds. Chloroform, toluene, ethylbenzene, and 1, 1, 2, 2-tetrachloroethylene were found at levels up to 50 ug/l in almost every sample. Copper, zinc, arsenic, and silver were the most frequently occurring metals.

The sediment analyses detected organic compounds rather infrequently. Metals were detected in every sample. Copper and zinc were detected at the highest levels, most likely due to their geologic abundance. Lead was also detected at elevated levels. Fine grain sediments were positively correlated to the metal concentrations; metals were also strongly intercorrelated meaning that when one was high others were also elevated.

The Raritan River, from the confluence of the North and South Branches downstream to the confluence with the Millstone River, is assessed as supporting a healthy warm water fish community. Below the confluence with the Millstone down to the Landing Lane Bridge in New Brunswick, the river's fishery is judged to be moderately degraded.

Problem and Goal Assessment

Point Source Assessment

The Raritan River appears to be heavily influenced by both point and nonpoint sources. The elimination of the American Cyanamid discharge, as noted above, has resulted in improvements in river water quality. However, a number of DWR enforcement actions are now underway. Facilities that are under such action which are having known impacts on surface water quality include: Somerset Raritan Valley Sewerage Authority's discharge to Cuckels Brook, the Manville STP discharge to the Raritan River, the Stavola Construction Materials discharge to Middle Brook, the Conrail Tile Drain discharge to the Raritan River, the Raritan River Steel discharge to the Raritan River, and a Middlesex County UA discharge to the Raritan River. A number of hazardous waste sites are located in the Raritan River watershed, many of which are on the National Priority List. Sites that are impacting surface waters include: Blue Spruce International (Raritan River), Chemical Insecticide Corporation (Mill Creek), Horseshoe Road Dump (Raritan River), Kin-Buc Inc. (Edmonds Creek and Raritan River), Renora Inc. (Mill Creek), and Rhone-Poulenc/Reagent Chemical (Raritan River).

Nonpoint Source Assessment

The Raritan River is impacted by nonpoint source pollution from urban/suburban development throughout its length. Additional nonpoint source pollution from land-fill leachate is suspected in the lower portions of the river. Runoff from urban surfaces, storm sewers and roadways are all believed to be an increasing problem in the watershed. Additional contamination sources are suspected from the land disposal of wastewater and from local chemical spills.

Construction activities are noted to be active in the Peters Brook area of the Upper Raritan sub-watershed, and in Franklin and Warren Townships in the Lower Raritan

sub-watershed. The result of this urbanization is an increase in the nutrient and sediment loads which the river must absorb, as well as an increase in local flooding.

Designated Use and Goal Assessment

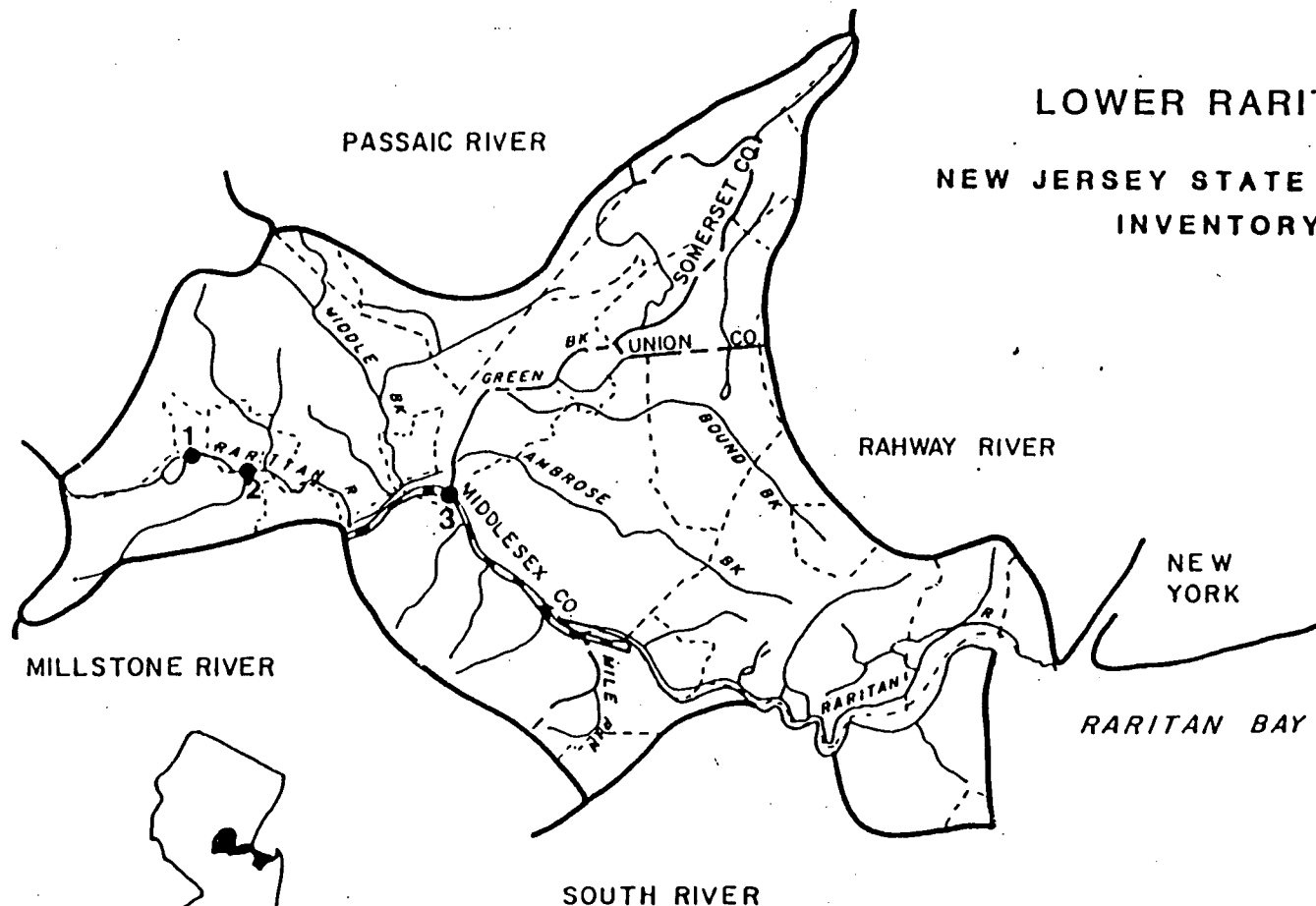
The Raritan River will only partially meet clean water goals and State designated uses. The entire river is not swimmable, and only the freshwater portions can be considered to be meeting the fish propagation and maintenance use/goal. The fisheries in this part of the river are thought to be threatened by the pollution sources present. In the tidal section of the river a moderately degraded fisheries is present and there is a fishing advisory because of PCBs contamination in certain fishes. The presence of elevated PCBs may indicate possible long-term health effects for fish. As a result the tidal Raritan River is only partially meeting the fish propagation/maintenance use.

Monitoring Station List

Map Number	Station Name and Classification
1	Raritan River at Raritan, FW-2 Nontrot
2	Raritan River at Manville, FW-2 Nontrot
3	Raritan River at Queens Bridge, FW-2. Nontrot

LOWER RARITAN RIVER

NEW JERSEY STATE WATER QUALITY INVENTORY REPORT



LEGEND

- STATE BOUNDARY
- STREAM
- COUNTY BOUNDARIES
- MUNICIPAL BOUNDARIES
- WATERSHED BOUNDARIES
- WATER SAMPLING STATIONS



SCALE IN MILES

LOCATION OF BASIN



Ill-227

ATTACHMENT

Z-5

Ref No. 4 P. 381

N.J.P.D.E.S. DISCHARGE INVENTORY

WATERSHED: Raritan River

DISCHARGE NAME	# NJPDES	RECEIVING WATERS	MUNICIPALITY/COUNTY	TYPE
St. Bernards Sch. STP	0020991	Lochiel Creek	Brdgwtr. Twp/Somerst	Municipal
Ethicon Inc.	0001139	Peters Brook	Brdgwtr. Twp/Somerst	Ind./Comm.
Crestline Div. of N. Am. Prod	0029921	Gaston Ave. Brook	Raritan Boro/Somerst	Ind./Comm.
Indust. Tube Corp.	0023019	Raritan River Trib.	Smrvil. Boro/Somerst	Ind./Comm.
Valley Rd. Sew. Co. -	0022772	Royce Brook	Hilsboro Twp/Somerst	Municipal
Fieldhedge				
Chemicals Corp.	0021806	Middle Brook	Brdgwtr. Twp/Somerst	Ind./Comm.
Somerset-Raritan Valley S.A.	0024864	Cuckel's Brook	Brdgwtr. Twp/Somerst	Municipal
American Cynamid-Bound Brook	0002313	Raritan River	Brdgwtr. Twp/Somerst	Ind./Comm.
Taylor Oil Co.	0029271	Raritan River	Smrvil. Boro/Somerst	Ind./Comm.
Devro Inc.	0001961	Peters Brook	Smrvil. Boro/Somerst	Ind./Comm.
Warren Twp. SA-Stage 3 STP	0023752	Middle Brook	Warren Twp./Somerset	Municipal
Johns-Manville Sales Corp.	0001678	Raritan River	Manville Boro/Somerst	Ind./Comm.
Manville Boro STP	0028762	Confluence of Raritan/Millst.	Manville Boro/Somerst	Municipal
Veterans Admin. Supply Depot	0020036	Roycefield Brook	Smrvil. Boro/Somerst	Municipal
RBH Dispersions	0033545	Ambrose Brook	Midsex Boro/Middlesx	Ind./Comm.
Reagent Chem. + Research In.	0033251	Trib to Raritan Riv.	Midsex Boro/Middlesx	Ind./Comm.
National Starch & Chem. Corp.	0032506	Raritan River	Brdgwtr. Twp/Somerst	Thermal
Gibson Tube, Inc.	0064700	Trib. to Cuckels Brk	Brdgwtr. Twp/Somerst	Ind/Thermal
Zappa Res. & Molding Corp.	0030309	Green Brook River	Green Brook/Somerset	Thermal
Colorguard Corp.	0033111	Woodmere Brook	Raritan/Somerset	Thermal
Tingley Rubber Corp	0020672	Dismal Swamp	South Plainfield	Ind/Thermal
Scott Environmental Tech	0033707	Bound Brook	South Plainfield	Industrial
Metz Metallurgical Corp.	0034835	Middlesex County	South Plainfield	Industrial
Ronnie Packing Co.	0034886	Rain Water Ditch	South Plainfield	Thermal
United Steel Container Corp.	0032034	Mile Run	N. Brunswick	Thermal
Clayton Block Corp.	0026069	Mill Brook	Metuchen/Midd.	Ind/Strmwtr
Troy Chen-Corp.	0031453	Pierson's Creek	Middlesex Boro/Midd.	Thermal
Webcraft	0052655	Dismal Swamp	Metuchen/Midd.	Thermal
Gulton Industries, Inc.	0028720	Storm Creek Flow	Metuchen/Midd	Industrial
Sayeville Borough of	0050245	Cheesequake Creek		Industrial

III-229

ATTACHMENT

2-6
P4 NO. 40. 382

N.J.P.D.E.S. DISCHARGE INVENTORY

WATERSHED: Raritan River Cont.

DISCHARGE NAME	# NJPDES	RECIEVING WATERS	MUNICIPALITY/COUNTY	TYPE
National Cam	0036102	Bound Brook	Edison/Midd	Thermal
Academy Die Casting & Plating	0034495	Ambrose Brook	Edison/Mid	Industrial
Union Steel Corp.	0001015	Trib. to Raritan R.	Piscataway Twp/Midsx	Ind./Comm.
Sun Oil Co. of Pennsylvania	0025798	Raritan River	Piscataway Twp/Midsx	Ind./Comm.
Kentile Floors	0030023	Bound Brook	S. Plnflld. Boro/Mid.	Ind./Comm.
LA Dreyfus Co.	0001210	Drainage Ditch to Bound Brook	S. Plnflld. Boro/Mid.	Ind./Comm.
Mobile Chem. Co.	0026255	Bound Brook	Edison Twp./Middlesx	Ind./Comm.
PSE&G - Edison	0003603	Raritan River	Edison Twp./Middlesx	Ind./Comm.
Raritan Arsenal	0028835	Raritan River	Edison Twp./Middlesx	Municipal
Ford Motor Co. - Metuchen	0002691	Mill Brook	Edison Twp./Middlesx	Ind./Comm.
Oxford Div. - Hartford	0032557	Mile Run Brook	New Brnswk/Mdsx	Ind./Comm.
Delco Remy Div. of GMC Plant 12	003092	Mile Run Brook	New Brnswk/Mdsx	Ind./Comm.
Nuodex Inc.	0001791	Raritan River	Edison Twp./Middlesx	Ind./Comm.
NJP + Light	0002747	Raritan River	Sayreville Boro/Mdsx	Ind./Comm.
Amerada Hess Corp.	0001376	Raritan River	Perth Amboy Cty/Mdsx	Ind./Comm.
Chese Borough Ponds Corp.	0002381	Raritan River	Perth Amboy Cty/Mdsx	Ind./Comm.
Saytech Inc.	0031470	Trib. To Burt Ditch	New Brnswk. Cty/Mdsx	Ind./Comm.
Middlesex Co. M.U.	0020141	Raritan Bay	Sayreville Boro/Mdsx	Municipal
Sayreville Boro-Melrose STP	0023833	Raritan Bay	Sayreville Boro/Mdsx	Municipal
Bell Labs-Murray Hill	0000442	Trib. to Green Brook	Brkly Hts. Twp/Union	Ind./Comm.
Anchor Glass Container Corp.	0033651	Long Neck Creek	Cliffwood/Monmouth	Industrial
Buhler and Bitter	0062669	Raritan Bay	Hazlet/Monmouth	Industrial
Comdata Systems Incorp	0001775	Ditch to Mahora	Holmdel/Mon	Industrial
Biddle Sawyer Corp	0030872	Lupatcong Creek	Keyport/Mon	Thermal
Aberdeen Twonship MUA	0022535	Whale Creek	Matawan/Mon	Municipal
Engineered Precision Castings	0033294	Wrackaack Creek	Middletown Twp./S.A.	Thermal
Aberdeen Township WTP	0034142	Wilkson Creek	Monmouth County	Ind
Imperial Oil Comp Inc	0035874	Lake Lefferts	Morganville/Mon	Ind
Stavola Constructions Mat	0002895	Middle Brook	Red Bank/Mon	Ind/Storm
National Starch & Chemical	0001333	Coreen Brook	Plainfield/Union	Ther/Storm
Olivetti Corp of America	0032581	Raritan River	Somerville/Union	Ind

III-230

ATTACHMENT

Z-7

Ref No. 4 D. 383

N.J.P.D.E.S. DISCHARGE INVENTORY

WATERSHED: Raritan River

DISCHARGE NAME	# NJPDES	RECIEIVING WATERS	MUNICIPALITY/COUNTY	TYPE
Septembers On The Hill	0026727	Raritan River	Watchung/Union	Mun
Valvoline Oil Comp	0030503	Raritan River	Edison/Middlesex	Ind
Nuodex Inc	0000116	Raritan River	Fords/Midd	Therm/Ind
Weldon Concrete	0000345	Raritan River	Keasbey/Midd	Ind
Sohio-Carborundum	0002950	Raritan River	Keasbey/Midd	Ind
Woodbridge, Twp	0020401	Raritan River	Keasbey/Midd	Mun
New Brunswick	0033219	Raritan River	N. Brunswick/Midd	Mun
Old Bridge, Twp	0022471	Raritan Bay	Old Bridge/Midd	Mun
Old Bridge MUA Browntown	0033065	Raritan Bay	Old Bridge/Midd	Mun
Reserve Terminal Corp	0001392	Raritan Bay	Perth Amboy/Midd	Ind
Perth Amboy	0023213	Raritan Bay	Perth Amboy/Midd	Mun
Raritan River Steel Comp	0031178	Storm Sewer to Rar	Perth Amboy/Midd	Ind
Union Carbide	0000256	Raritan River	Piscataway/Midd	Ind/Therm
Beecham Laboratories Inc	0035491	Raritan River	Piscataway/Midd	Ind
EH Werner Generating Station	0002755	Raritan River	South Amboy/Midd	Ind/Therm
Silvatrium Corp of American	0030881	Raritan River	South Plainfield/Mid	Ind
Design & Molding Services	0029629	Bound Brook	Piscataway/Midd	Ind
Captive Plastics	0030571	Ambrose Brook	Piscataway/Midd	Ind
Parkway Plastics	0032042	Bound Brook	Piscataway/Midd	Thermal
Evans Partnership	0033723	Ambrose Brook	Piscataway/Midd	Ind
Eastern Steel Barrel Corp	0034797	Bound Brook	Piscataway/Midd	Ind
Bound Brook Operation	0061794	Bound Brook	Piscataway/Midd	Ind
Exxon Service Station	0063967	Raritan River	Matawan/Mon	Ind
North American Philips Lgt.	0064939	Ambrose Brook	South Plainfield/Mid	Ind

ATTACHMENT

25

Ref. No. 4 p. 384

ATTACHMENT AA

STATE AND FEDERAL THREATENED AND ENDANGERED SPECIES, BY QUAD

List provided by Computerized Fish and Wildlife Information System
New Jersey Division of Fish, Game and Wildlife
20 JUN 1990

	QUAD	SPECIES
141	South Amboy	Treefrog, pine barrens Shad, American Turtle, bog Night-heron, yellow-crowned Harrier, northern
143	Keyport	Treefrog, pine barrens Shad, American Osprey Tern, least
145	Sandy Hook	Bittern, American Osprey Rail, black Plover, piping Skimmer, black
147	Lambertville	Sturgeon, shortnose Shad, American Swallow, cliff
149	Pennington	Sturgeon, shortnose Shad, American Turtle, wood Swallow, cliff Sparrow, Savannah Sparrow, grasshopper Sparrow, Henslow's Sparrow, vesper
151	Princeton	Salamander, longtail Turtle, wood Bittern, American Sandpiper, upland Owl, barred Sparrow, grasshopper Sparrow, Henslow's Sparrow, vesper
153	Hightstown	Turtle, wood Sandpiper, upland Sparrow, Savannah Sparrow, grasshopper
155	Jamesburg	Treefrog, pine barrens Turtle, wood Bittern, American
157	Freehold	Snake, northern pine Turtle, bog Sparrow, Savannah
159	Marlboro	
161	Long Branch	Treefrog, pine barrens Snake, northern pine Turtle, bog Eagle, bald Sandpiper, upland
163	Trenton West	Sturgeon, shortnose Shad, American

ATTACHMENT

AA-1

Ref NO. 4 p. 386

Common Name: Night-heron, yellow-crowned
Scientific Name: *Nyctanassa violaceus*

NJ.HABITAT

Saltwater marsh
Freshwater marsh
Deciduous Forest
Mixed Forest

LAND.USE

Forested Wetland
Forest Land
Deciduous Forest Land
Mixed Forest Land
Water
Streams and Canals
Lakes
Reservoirs
Bays and Estuaries
Wetland
Nonforested Wetland

ATTACHMENT AA-2

Ref. NO. 4 p. 387

Common Name: Harrier, northern
Scientific Name: Circus cyaneus

NJ.HABITAT

Saltwater marsh

Freshwater marsh

Bog/swamp

Agricultural

LAND.USE

Herbaceous Rangeland

Shrub and Brush Rangeland

Agricultural Land

Cropland and Pasture

Rangeland

Mixed Rangeland

Wetland

Nonforested Wetland

Other Agricultural Land

Bays and Estuaries

COMMENTS ON HABITAT ASSOCIATIONS

Harriers inhabit non-forested land for nesting and foraging--marshes, prairies and grasslands *434,449,12*.y

ATTACHMENT

Ref. No. 4 p. 388

Common Name: Turtle, bog
Scientific Name: Clemmys muhlenbergii

NJ.HABITAT

Freshwater marsh

Bog/swamp

LAND.USE

Agricultural Land

Cropland and Pasture

Rangeland

Shrub and Brush Rangeland

Mixed Rangeland

Water

Streams and Canals

Wetland

COMMENTS ON HABITAT ASSOCIATIONS

In Pennsylvania, Bog Turtles found primarily in sphagnum bogs or wet sedge meadows in or near slow moving streams with a muddy bottom, above 610 meters elevation. The highest populations occur in shrub stage of forest succession. *3073*

In Maryland, Bog Turtles were associated with spring-fed pockets of shallow water, a bottom substrate of soft mud and rock, dominant vegetation of low grasses and sedges, and interspersed wet and dry pockets. Turtles were never encountered beyond the wet meadow transitional edge. This habitat was used for all activities, including mating, foraging, egg-laying, basking, resting, and over-wintering. *17*

Ref. No 4 p. 389
ATTACHMENT AA-4

Sphagnum is present at most breeding sites *06,09,08,01,03,04*. Breeding waters are normally acid ($4.1 < \text{pH} < 4.5$; sometimes lower, rarely higher *06,09,03*); use of low pH breeding sites may be an adaptation to reduce amphibian competitors, none of which are as acid-tolerant *06,09,11*. Freda and Morin *06* found that pH of most ponds did not change consistently over time; they noted that changes of 0.1 pH can be very significant to aquatic life. Plant species which have been reported in association with Pine Barrens Treefrog breeding sites in New Jersey include: Sphagnum moss; sundews (*Drosera* spp.); pitcher plants (*Sarracenia purpurea*); orchids (*Platanthera* spp.); southern or Atlantic white cedar (*Chamaecyparis thyoides*); pitch pine (*Pinus rigida*); mountain laurel (*Kalmia latifolia*); high-bush blueberry (*Vaccinium corymbosum*); swamp azalea (*Rhododendron viscosum*); sheep laurel (*Kalmia angustifolia*); black-jack oak (*Quercus marylandica*); magnolia (*Magnolia virginiana*); greenbriar (*Smilax* spp.); maples (*Acer* spp.); *Nyssa aquatica*; sweet pepperbush (*Clethra alnifolia*) *03,01,06*.

TERRESTRIAL HABITAT:

Freda and Morin *06* and Freda and Gonzalez *10* reported the results of a radioactive isotope-tagging study of Pine Barrens Treefrogs performed in New Jersey. Tagged treefrogs ($n = 8$) generally remained within 70 m of the breeding pond; one individual moved 102 m away. Microhabitats of tagged animals located at midday were (% of 103 recaptures): 1) sitting on ground, 33%, 6 frogs; 2) buried in leaf litter under scrub oak, 5%, 3 frogs; 3) on a scrub oak leaf, 23%, 4 frogs; 4) on a pitch pine or scrub oak branch, 39%, 8 frogs *10*. Some frogs, not relocated, may have moved out of the study area. Calling Pine Barrens Treefrogs were frequently heard > 100m away from the breeding site. Daily movements of 100 m were recorded. *06*.

Common Name: Treefrog, pine barrens
Scientific Name: *Hyla andersonii*

NJ.HABITAT

Bog/swamp

Mixed Forest

Coniferous Forest

Freshwater aquatic

LAND.USE

Wetland

Forested Wetland

Mixed Forest Land

Evergreen Forest Land

Forest Land

Transportation, communications, and Utilities

Water

Streams and Canals

COMMENTS ON HABITAT ASSOCIATIONS

Like many amphibians, Pine Barrens Treefrogs use two habitats, wetland/water for breeding and upland at other seasons. Habitat in and around breeding sites has been well studied, e.g. *06,09,08,01*. Terrestrial habitat is much less well known, but see *06,11* and below.

BREEDING HABITAT:

Breeding habitat structure is similar throughout the species range, although many different plant species may be involved *06,08,01,03*. Pine Barrens Treefrogs breed in seepage bogs, small ponds and streamlets of generally permanent nature *06,09,08,01,03*. Depths of ten breeding sites in one NJ study were mostly < 1 m, with one site < 0.1 m, and portions of one > 2 m. Another NJ source states that breeding ponds are usually < 60 cm deep *02*. Nearly all breeding sites have a shrub or herbaceous zone, composed of various species, indicating a sub-climax, open-canopy community *06,08,01,04*, although the species is also reported in Atlantic white cedar swamps and pitch pine lowland forests *03,04,01* with less open canopy *11*. Forty sites in NJ, NC, SC, and FL had an open canopy with overstory density ranging from 0-112 trees per 100 sq.m (mean = 26/100 sq.m); the shrub understory averaged 1.6 m high with stem density of 32 stems per meter (about 50% foliage coverage) *06*.

Ref. No. 4 p. 391
ATTACHMENT AA-6

Common Name: Shad, American
Scientific Name: *Alosa sapidissima*

NJ.HABITAT

Freshwater aquatic

Fresh and Salt water

LAND.USE

Water

Streams and Canals

Bays and Estuaries

Atlantic Ocean Coastal Waters

COMMENTS ON HABITAT ASSOCIATIONS

Dissolved oxygen levels < 3 ppm strongly reduce or eliminate spawning migration and may cause mortality *01*. Shad spawn in a current less than 0.3 to greater than 0.9 m/sec *1257*. The minimum spawning temperature for American Shad is 12 degrees C *10,12,2517*, although most spawning takes place at between 13-20 degrees C *12,10,4205*. Shad spawn in fresh or slightly brackish water *2517*, over shallow flats and riffles *4205*. They show a preference for channel areas *2522,2530*. The adults are highly tolerant of varying salinity levels, but require 2-3 days to adapt to fresh water *12*. Adults surviving the spawning run return promptly to the sea *12*.

Eggs are absent at dissolved oxygen levels less than 5 ppm *2533*. The eggs hatch more successfully in slightly brackish water (7.5 ppm, at 12 degrees C and 15 ppm at 17 degrees C). The eggs are broadcast loosely in open water *2521,10*. In Virginia, the eggs become abundant when the water reaches 12 degrees C *4205*. Hatching and survival of Shad are greatest between 15.5-26.5 C. *12*.

Ref. NO. 4 p. 392
ATTACHMENT AA-7

ATTACHMENT BB

Porter
July 11

**AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

DEPT. OF ENVIRONMENTAL PROTECTION
DIV. OF PERMITS
In compliance with the provisions of the Federal Water Pollution
Control Act, as amended, (33 U.S.C. 1251 et seq; the "Act").

Essex Chemical Corporation
B.F.C. Division

is authorized to discharge from a facility located at

One Crossman Road, South
Sayreville, New Jersey 08872

to receiving waters named

Drainage ditch leading to Burt Creek

in accordance with effluent limitations, monitoring requirements and
other conditions set forth in Parts I, II, and III hereof.

This permit shall become effective on July 31, 1975.

This permit and the authorization to discharge shall expire at
midnight, July 31, 1980.

By authority of Gerald M. Hansler, P.E., Regional Administrator.

Signed this *21* day of JUN 1975

Mayer Scolnick

Mayer Scolnick, Director
Enforcement and Regional
Counsel Division

ATTACHMENT BB4

A. 1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning July 31, 1975 and lasting through July 31, 1980, the permittee is authorized to discharge from outfall(s) serial number(s) 001 & 002.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Gross- Discharge Limitations				Monitoring Requirements	
	kg/day(lbs/day)	Other Units(Specify)	Measurement Frequency	Sample Type		
	Daily Avg	Daily Max	Daily Avg	Daily Max		
Flow-m ³ /Day (MGD)	NA	NA	NA	NA	Monthly*	NA
Total Suspended Solids	NA	16 (35)	NA	20 mg/l	Monthly	Composite
Total Organic Carbon	NA	16 (35)	NA	20 mg/l	Monthly	Composite
Temperature °C(°F)	NA	NA	NA	27 (80)	Monthly	Grab
Zinc (Total)	NA	.82 (1.8)	NA	1.0 mg/l	Quarterly**	Composite
Chromium (Total)	NA	.82 (1.8)	NA	1.0 mg/l	Quarterly**	Composite

**Monitoring of this parameter shall not be required unless the parameter is used in water treatment.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored monthly. The sample type for this parameter shall be grab.

There shall be no discharge of visible oil.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Points at which discharge leave permittee's property. (Outfall 001 & 002).

Methods, equipment, installation and procedures shall conform to those prescribed in the Water Measurement Manual, U.S. Department of the Interior, Bureau of Reclamation, Washington, D.C. 1967.

All flow measurements shall achieve accuracy within the range of $\pm 15\%$.

ATTACHMENT

88-2

Kaiser Chemical Corporation
B.F.C. Division

Page 2 of 9
Permit No. NJ0003093

PART 1

201 NOV 10 0 24

ATTACHMENT CC

ESSEX CHEMICAL CORPORATION

JUN 17 1974

SAYREVILLE PLANTDESCRIPTION OF WATER USAGE

As shown on the attached flowsheet, the municipal water intake is the only source of water supply to the plant. The average daily flow of water through the plant amounts to approximately 250,000 gallons, of which about 10,000 gallons are used in sanitary facilities, while the remainder is distributed as follows:

- (a) 210,000 gal. for cooling
- (b) 20,000 gal. for steam generation and heating
- (c) 10,000 gal. as make-up water for manufactured products

In virtually all cases, the cooling water is used in cooling jackets, with which the various reactors and mixing vessels are equipped.

Most of the cooling water is discharged to the creek together with the steam condensate. The cooling water from one of the production areas ("Emulsions"), amounting to an estimated 20,000 gal/day is sent to the municipal sewer together with the water used in the sanitary system.

The uncontaminated water effluent enters the creek at two locations and consists of about 70,000 gal. of cooling water from the urethane area (001) and about 140,000 gal. of steam condensate and cooling water from other areas (002). Sampling points are provided at both locations. Separate applications are being submitted for each location.

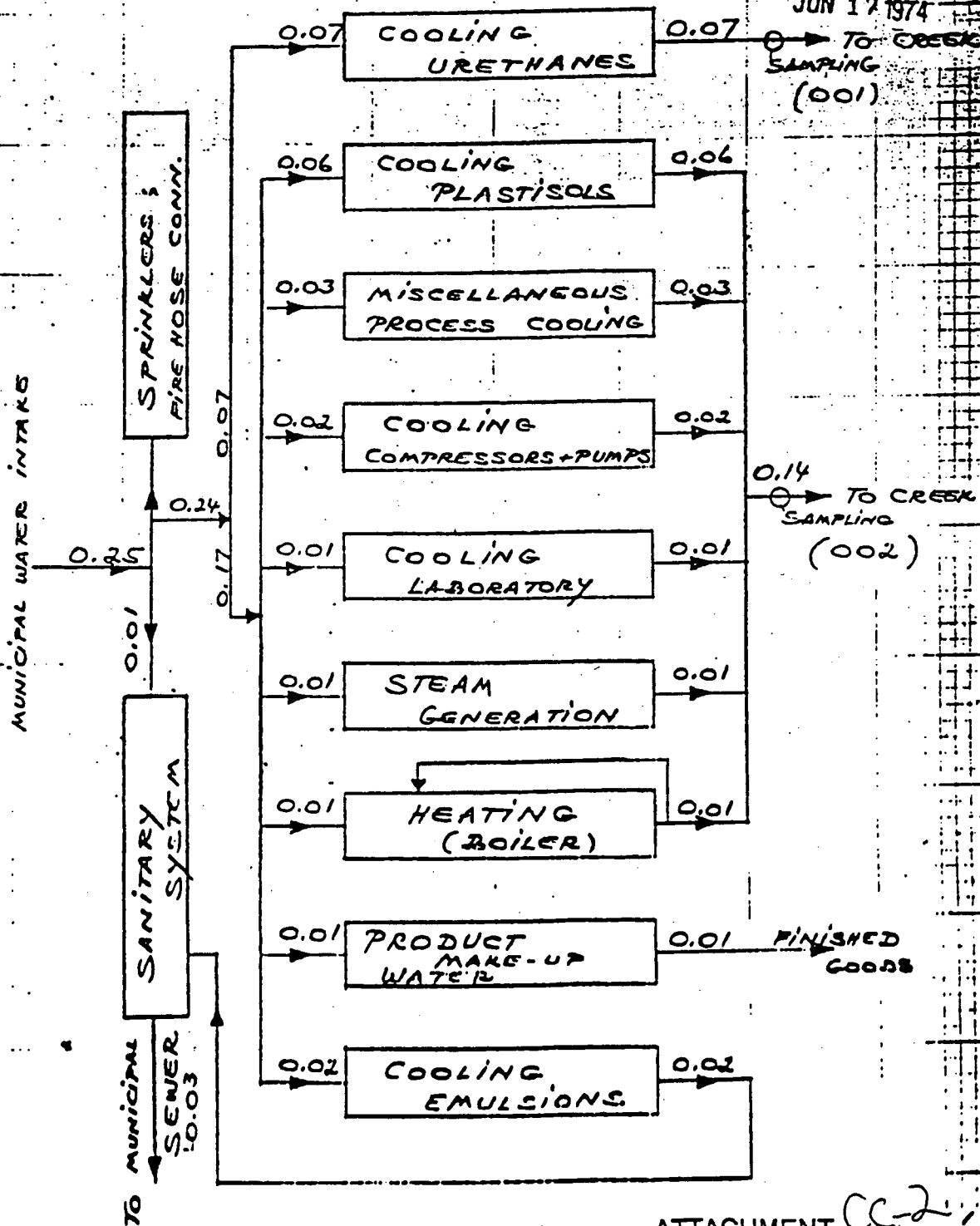
The reported total of 210,000 gal. per day of creek discharge represents an estimated yearly average. The actual consumption varies with individual process conditions and overall operating capacity, from a low of about 100,000 gal/day to a maximum of 360,000 gal. per day.

XMINIIV

ATTACHMENT. CC4

WATER USAGE (MILLION GALLONS/DAY)

JUN 17 1974



ATTACHMENT

CC-2

ATTACHMENT DD



ESSEX CHEMICAL CORPORATION

EXECUTIVE OFFICES

1401 BROAD STREET • CLIFTON, N. J. 07013

PHONE 201-773-6300

NEW YORK 212-962-3042

CABLE ADDRESS ESSEXCHEM, CLIFTON, N. J.

November 26, 1980

REGISTERED MAIL

Ms. LaVerne J. Makfinsky
Manager Technical Compliance
Saytech, Inc.
880 Main Street
Sayreville, NJ 08872

Dear Ms. Makfinsky:

Today I received your letter to Peter Chmiel of Schoor Engineering written on November 11 that contained a request for more information concerning our application to construct a rainwater runoff treatment and disposal system. I have obtained some data that perhaps answers most of your questions.

1. The Engineering Package supplied to the Planning Board and Schoor Engineering does contain a contour map. (If you need a different elevation code, we can change the code but I would think that this is insignificant.)
2. All of our sanitary waste goes to Middlesex Sewage Authority (a POTW) via the appropriate sewers. None of the plant piping (sanitary waste) leads to Saytech. (Sanitary Waste does not relate to this project).
3. We have 3 outfall points (001, 002, and 003). 001 and 002 go to the ditch that empties into Burts Creek. 003 accepts storm drainage (you refer to 003 as a catch basin in your letter) and 003 also accepts rainwater runoff from the property. 003 will in the future accept the rainwater runoff from the back yard that has been decontaminated in our proposed system.

I have included copies of our NPDES Permit Renewal Application that cover all our plant outfall points. These contain all relevant data for NJDEP and EPA Region II. I'm sure these data answer your questions about outfall.

4. You requested flow rates, volume and quality of collected and discharged waters presently flowing through the open ditch along Main Street that leads to Burts Creek and

ATTACHMENT 004

204 N. 4 D. Uno

Ms. LaVerne J. Makfinsky

November 26, 1980

through the catch basin.

- o The open ditch is a natural drainage ditch that empties the swamps and conveys rainwater runoff along Main Street above our property. Our input into the ditch is covered by the NPDES Permits noted above and the flow rates, etc. are in the documents attached. The ditch is monitored and controlled by EPA Region II. If you require additional information concerning the flow and make up of the ditch water perhaps you should contact EPA Region II (Mr. Casselano at the Federal Plaza).
- o Outfall 003 (the "catch basin" referred to in your letter) is also described in the attached documents. The "catch basin" is dry unless it rains. Peripheral drainoff from underground water goes into 003 outfall. (Outfall at present is zero).

I have talked to NJDEP and EPA and both have conditionally approved our plan.

If you need anymore specific information, please write us a note outlining your specific needs. (Specific flow rates and analysis of a Federally controlled water drainage ditch should come from EPA Region II.)

I hope this answers all your questions.

Very truly yours,

C. J. Benning

C. J. Benning
Director of Regulatory Affairs

CJB:np
Encls.

cc: P. Chmiel - Schoor Engineering
M. Barr - Plant Manager
D. Davis - Mgr., Chemical Process Engineering
Ms. M. Carasia - NJDEP
Sayreville Planning Board

ATTACHMENT 002

ATTACHMENT EE

Freshwater Wetlands Permit Application

Freshwater Wetlands Permit (NJSA 13:9B, NJAC 7:7A), Water Quality Certification (NJAC 7:7A), Open Water Fill Permit (NJSA 58:10A, as amended by NJSA 13:9B-31, & NJAC 7:7A.) & Transition Area Waiver (NJAC 7:7A)

This form is to be used to apply for a Statewide General Freshwater Wetlands Permit, Individual Freshwater Wetlands Permit, Open Water Fill Permit, Water Quality Certificate, and Transition Area Waiver. Activities covered by Statewide General Permits are described in the Freshwater Wetlands Protection Act Rules (Specifically, NJAC 7:7A-9). All activities regulated under the Freshwater Wetlands Protection Act, P.L. 1987, c. 156 which are not explicitly covered by a Statewide General Permit, require an Individual Permit. Three sets of instructions are attached, explaining which items need to be completed for Individual Permits, Statewide General Permits, and Transition Area Waivers. All items must be completed for an Individual Permit. For more detailed information, and procedures for obtaining permit approvals, see NJAC 7:7A.

Information provided on this form will be used in evaluating the application for a permit/waiver, and shall be a matter of public record.

Disclosure of the information requested is voluntary. If necessary information is not provided, the permit/waiver application cannot be processed nor can a permit/waiver be issued.

This application should be submitted to the NJ Department of Environmental Protection, Division of Coastal Resources, Bureau of Freshwater Wetlands, CN 401, Trenton, NJ 08625 (Street address: Station Plaza 5, 501 East State Street, Trenton). An original and two (2) copies are needed for a proposed activity covered by a Statewide General Permit. An original and nine (9) copies of this completed application form, along with ten (10) copies of all support documents specified below, must be submitted for an Individual Freshwater Wetlands Permit or Open Water Fill Permit Application. An original and five copies are needed for a Transition Area Waiver. If additional space is needed to complete this application, use plain bond paper and attach it to the application form. Please reference the application form item numbers for all such additions.

FOR NJDEP USE ONLY

Application number: _____

Fee received: \$ _____

By: _____

Date: _____

I have an authorized agent to act on my behalf relative to this application. ☐ Yes ☒ No
(See instruction sheet item #2)
Name, address and title of agent, if any. _____

Telephone number during business hours:
Work () _____ - _____

Statement of Authorization: I hereby designate and authorize _____
to act on my behalf as my agent with regard to this permit/waiver application and to furnish, upon request, supplemental information in support of this application.

Signature of Applicant _____

Date _____

Type or print all information

1. Name and address of applicant:

Jerry Spradling (Vice President -
Research and Development)
Essex Specialty Products, Inc.
1135 Broad Street
Clifton, New Jersey 07015

Telephone number during business hours:

Residence () _____ - _____
Work (201) 773 - 6300

3. This application is for:

- ☒ Approval of activities covered by a Statewide
General Permit Number(s) GP-14
☐ Individual Freshwater Wetlands Permit
☐ Individual Open Water Fill Permit
☐ Water Quality Certificate
☐ Transition Area Waiver

See Program Summary in Appendix A for
applicable permit/waiver descriptions and numbers.

4. Fee Attached: \$ N/A

(See Attached fee schedule in Appendix B.)

Provide a written description of the proposed regulated/prohibited activity including the total area to be used, filled, or modified. See Instruction Item #5 for the specific information required for an Individual or State Open Water Permit, Statewide General Permit, or Transition Area Waiver.

See Section 2: Project Description and Statewide
General Permit Conditions

ATTACHMENT EEY

1135 Broad Street
Clifton, New Jersey 07015
(201) 773-6300
FAX: (201) 778-3280
TELEX: 710 989 7045

March 21, 1990

Ms. Ann Fonseca
Middlesex County Planning board
40 Livingstont Aveune
New Brunswick, New Jersey 08901

Dear Ms. Fonseca:

The purpose of this letter is to notify you of our intention to submit a Freshwater Wetland Permit Application to the New Jersey Department of Environmental Protection (NJDEP) for remediation activities that are proposed on the Essex Specialty Products, Inc. (Essex) facility (ECRA Case No. 88904) which is located at the corner of Main Street and Crossman Road South in Sayreville, Middlesex County, New Jersey (Block 251, Lot 2 and Block 366A, Lot 2).

Participating in an Environmental Cleanup Responsibility Act (ECRA) compliance program, the NJDEP has required Essex to remediate contaminated soils which are located in a wetland. The proposed remediation activities will temporarily impact a minor amount of wetlands (3472 square feet, 0.08 acres and will require a wetlands permit.

Enclosed please find a copy of permit materials submitted to the NJDEP Bureau of Freshwater Wetlands. This includes a Freshwater Wetlands Permit Application (Form FW-1), a vicinity map of the proposed remediation activities, and site plans depicting wetland boundaries, proposed construction activities and wetland impacts.

All inquires concerning this project should be sent to Alan Whyman, NJDEP, Division of costal Resources, CN 401, 501 East State Street, Trenton, NJ 08625.

Sincerely,



Deborah L. Rosenthal
Environmental Specialist

DLR:SWR

ATTACHMENT EE-2

Ref No 4 a 404

ATTACHMENT FF

Ref. No. 4 p. 405



CENTRAL JERSEY REGIONAL AIR POLLUTION CONTROL AGENCY

655 AMBOY AVENUE
WOODBRIDGE, NEW JERSEY 07095
TELEPHONE: (201) 634-0290

No. 1701
Oct. 17, 1977

NOTICE OF VIOLATION

TO: Mr. Daniel Blankenship
Boiling Plant Manager
Larsen Chemical Corporation
1 Crossman Road, South
Sayreville, New Jersey 08871

RE: AIR POLLUTION CODE OF
THE Borough of Sayreville

VIOLATION EXISTS AT THE PREMISES
KNOWN AS: Larsen Chemical Corporation
1 Crossman Road, South
Sayreville, New Jersey

DEAR SIR:

An investigation or inspection by Agency personnel was conducted at the premises noted above on 10/11/77. The investigation or inspection disclosed that a violation of Section 4.1 (see below) of the Air Pollution Control Code Ordinance of the Boro. of Sayreville did exist at the Hot Melt Storage Tank Heater between 11:04 A.M. and 11:04 P.M.

This violation makes you liable to prosecution under the ordinance cited. This notice should not be construed as to relieve you from liability under the aforementioned ordinance. A separate offense shall be deemed committed on each day during, or on which, a violation occurs or continues. You are therefore requested to take those necessary steps to correct this condition.

SECTION 4.1: The investigation or inspection discloses visible smoke being emitted into the outdoor air from the combustion of fuel in any stationary indirect or direct heat exchanger having a rated hourly capacity of less than 100 million BTU gross heat input or discharging through a stack or chimney having an internal cross-section dimension of less than 30 inches.

☐ This notice shall be regarded as a warning notice provided that the violation does not continue or recur.

☐ This violation is being processed for legal action in Municipal Court.

☐ This violation is being forwarded to the New Jersey Bureau of Air Pollution Control for a violation of N.J.A.C. 7:27 et. seq. section _____.

Further action will be held in abeyance pending completion of the heater repair by November 17, 1977, and the abatement of the opacity emissions.

WILLIAM J. ROMANOFF
Director

Attached Ordinance Section #7

C# 157-77, Director Blankenship
Sent registered mail

ATTACHMENT FF-1

Ref. No. 4 p. 406

SERVING THE COMMUNITIES OF:

INDEN

PERTH AMBOY

RAHWAY

SAYREVILLE

SOUTH AMBOY

WOODBRIDGE



CENTRAL JERSEY REGIONAL AIR POLLUTION CONTROL AGENCY

280 HOBART STREET, ROOM 518
PERTH AMBOY, NEW JERSEY 08861
TELEPHONE: (201) 826-3100

No. _____

NOTICE OF VIOLATION

TO: Mr. W. Klapper
Process Engineer
Isom Chemical Corporation
1 Crossman Road, South
Sayreville, New Jersey 08877

RE: AIR POLLUTION CODE OF
THE BOROUGH OF SAYREVILLE

VIOLATION EXISTS AT THE PREMISES
KNOWN AS: Isom Chemical Corporation

DEAR SIR:

An investigation or inspection by Agency personnel was conducted at the premises noted above on 11/14/79. The investigation or inspection disclosed that a violation of Section 4.1 (see below) of the Air Pollution Control Code Ordinance of the Borough of Sayreville did exist at the Cleaver Brooks Boiler located between 10:00 A.M. and 10:30 A.M.

This violation makes you liable to prosecution under the ordinance cited. This notice should not be construed as to relieve you from liability under the aforementioned ordinance. A separate offense shall be deemed committed on each day during, or on which, a violation occurs or continues. You are therefore requested to take those necessary steps to correct this condition.

SECTION 4.1: The investigation or inspection discloses visible smoke being emitted into the outdoor air from the combustion of fuel in any stationary indirect or direct heat exchanger having a rated hourly capacity of less than 100 million BTU gross heat input or discharging through a stack or chimney having an internal cross-section dimension of less than 30 inches.
Specifically: Excessive Black Smoke

- ☐ This notice shall be regarded as a warning notice provided that the violation does not continue or recur.
- ☐ This violation is being processed for legal action in Municipal Court.
- ☐ This violation is being forwarded to the New Jersey Bureau of Air Pollution Control for a violation of N.J.A.C. 7:27 _____ et. seq. section _____.
- ☐ Other:

Director

Attached Ordinance Section #7

C# 1018-79, INTERMITTENT EMISSIONS
CC: N.J. Bureau of Air Pollution Control, Trenton, NJ
Sent Regular Mail

ATTACHMENT EF-2

Ref. No. 4 p. 407

SERVING THE COMMUNITIES OF:

LINDEN

PERTH AMBOY

RAHWAY

SAYREVILLE

SOUTH AMBOY

WOODBIDGE



CENTRAL JERSEY REGIONAL AIR POLLUTION CONTROL AGENCY

280 HOBART STREET, ROOM 518
PERTH AMBOY, NEW JERSEY 08861
TELEPHONE (201) 826-3100

No. 0221

NOTICE OF VIOLATION

March 31, 1988

TO: Mr. William Klapper
Process Engineer
Essex Chemical Corporation
1 Crossman Road, South
Sayreville, New Jersey 08872

RE: AIR POLLUTION CODE OF
THE Borough of Sayreville

VIOLATION EXISTS AT THE PREMISES
KNOWN AS: Essex Chemical Corporation
1 Crossman Road, South
Sayreville, New Jersey

DEAR SIR:

An investigation or inspection by Agency personnel was conducted at the premises noted above on 3/23/88. The investigation or inspection disclosed that a violation of Section 4.1 (see below) of the Air Pollution Control Code Ordinance of the Boro of Sayreville did exist at the Hot Melt Storage Tank Heater between 1:31 P.M. and 2:06 P.M.

This violation makes you liable to prosecution under the ordinance cited. This notice should not be construed as to relieve you from liability under the aforementioned ordinance. A separate offense shall be deemed committed on each day during, or on which, a violation occurs or continues. You are therefore requested to take those necessary steps to correct this condition.

SECTION 4.1: The investigation or inspection discloses visible smoke being emitted into the outdoor air from the combustion of fuel in any stationary indirect or direct heat exchanger having a rated hourly capacity of less than 200 million BTU gross heat input or discharging through a stack or chimney having an internal cross-section dimension of less than 60 inches.
Specifically: Excessive Smoke Emissions

- ☐ This notice shall be regarded as a warning notice provided that the violation does not continue or recur.
- ☐ This violation is being processed for legal action in Municipal Court.
- ☐ This violation is being forwarded to the New Jersey Bureau of Air Pollution Control for a violation of N.J.A.C. 7:27 _____ et. seq. section _____.
- ☐ Other:

Stanley J. Roman
STANLEY J. ROMAN
Director

Attached Ordinance Section #7

c# 236-80, Chief Inspector Lauritzen
CC: Mr. Bureau of Air Pollution Control, Central Office
Sent Regular Mail

ATTACHMENT FF-3

PH

Ref. No. 4 p. 408

THE COMMUNITIES OF:

PERTH AMBOY

RAHWAY

SAYREVILLE

SOUTH AMBOY

WOODBRIDGE

ATTACHMENT GG

Ref. NO. 4 P. 409

INCIDENT REPORT

12-19-84

D.W.M. ASSIGNED CASE NUMBER	84-110-25-084	HOT LINE	<input type="checkbox"/>	INDEXED	<input type="checkbox"/>
DATE	110-25-84	TIME (Military)	1105	D.W.M. ID NO.	52216

INCIDENT REPORTED BY:

NAME	Richard Gaul	PHONE	201-3200
AFFILIATION	Sayerville FD	CODE	
STREET			
CITY		STATE	ZIP CODE

INCIDENT LOCATION:

NAME	ESSEX CHEM	PHONE	
STREET	MAIN ST	UTM VERT	
CITY	SAYERVILLE	COUNTY	3 12/19
		STATE	ZIP CODE

SOURCE OF SPILLED AND/OR DISCHARGED SUBSTANCE: Confirmed ☐ Alleged ☐ More Than 1 Source ☐

COMPANY NAME	Same as "IL"	PHONE	
CONTACT		TITLE	
STREET		DEP COMPANY NO.	
CITY		STATE	ZIP CODE

SUSPECTED SPILLED AND/OR DISCHARGED SUBSTANCE: Confirmed ☐ Alleged ☐ More Than 2 Substances ☐

1. ISOCYANATE	SUBSTANCE NO.	
AMOUNT SPILLED	UNITS	A/P/E
CAUSE		
2.	SUBSTANCE NO.	
AMOUNT SPILLED	UNITS	A/P/E
CAUSE		

DATE OF INCIDENT	TIME (Military)	TEMP.	WEATHER	WIND (Dir. & Vel.)
110-25-84	11AM			
SPILL ORIGIN	No spill -			CODE
CAUSE	Fumes caused by exothermic reaction			CODE
WATER BODY AFFECTED	None			CODE
ASSOCIATED FIRE AND/OR HAZARDS				

INCIDENT REFERRED TO:

AGENCY	PHONE
CONTACT	AGENCY CODE

PRIMARY D.W.M. INVESTIGATOR	FOLLOWUP
NO FURTHER ACTION	DATE

COMMENTS:

FD entered building with no respiratory protection
I told Mr. Gaul of possible health effects, told him to contact MCHD. I contact DOH - Bob Heng and told him of potential for problems in FD personnel.

ATTACHMENT GG-1
Ref No. 4 p. 410

D.W.M. ASSIGNED CASE NUMBER <u>84-10-25-08C</u>		Page <u>2</u> of <u> </u>
DATE <u>10-25-84</u>	TIME <u>1401</u>	D.W.M. ID NO. <u>2057-</u>

10-25-84 Called Mr Szabo MCHD 201-828-8100 was not in the office but will call when he returns. 2057

10-26-84 called Mr. Szabo MCHD - Re. want to meet; left message to call D.O. on Monday (2118)

10/30/84 Spoke @ Mr. Szabo and as of this date no contact was made to his office by Mr. Gaul. Mr. Szabo will be contacting Mr. Gaul (Seyerville F.D.) and speak to him regarding the incident M.A.P.

10/30/84 Spoke @ Mr. Szabo's secretary and she stated that Mr. Gaul has contacted Dennis Malinowski (Seyerville Haz. Mat. Health Dept.) and is being informed as to health effects encountered. M.A.P.

ATTACHMENT HH

RECEIVED

DEPARTMENT OF HEALTH
COUNTY OF MIDDLESEX, NEW JERSEY

417 DENNISON STREET
HIGHLAND PARK, N.J. 08904

(201) 828-8100

MAR 25 1986

N.J. DEPT. OF ENVIRONMENTAL PROTECTION
LASZLO SZABO, MPH, MPA
BUREAU OF AIR POLLUTION CONTROL
DIRECTOR



No. 3851

NOTICE OF VIOLATION

March 24, 1986

Mr. Robert Hoffman
TO: Plant Manager
Essex Specialty Products, Inc.
1 Crossman Road South
Sayreville, New Jersey 08872

RE: AIR POLLUTION CODE OF
THE Borough of Sayreville
#1492

VIOLATION EXISTS AT THE PREMISES
KNOWN AS: Essex Specialty Products, Inc.
1 Crossman Road South
Sayreville, New Jersey 08872
Plant ID# 15550

DEAR SIR:

An investigation or inspection by Agency personnel was conducted at the premises noted above on 11/7/85. The investigation or inspection disclosed that a violation of Section 3.1 (see below) of the Air Pollution Control Code Ordinance of the Boro of Sayreville did exist at the "Hot Melt" transfer area between 9:49 A.M. and 10:30 A.M.

This violation makes you liable to prosecution under the ordinance cited. This notice should not be construed as to relieve you from liability under the aforementioned ordinance. A separate offense shall be deemed committed on each day during, or on which, a violation occurs or continues. You are therefore requested to take those necessary steps to correct this condition.

SECTION 3.1: The investigation or inspection discloses no person shall cause, suffer, allow or permit to be emitted into the open air, substances in such quantities as shall result in air pollution.

Specifically: Fugitive "burnt plastic" type odors verified off the plant property resulting in complaint.

☒ This notice shall be regarded as a warning notice provided that the violation does not continue or recur.

☐ This violation is being processed for legal action in Municipal Court.

☐ This violation is being forwarded to the New Jersey Bureau of Air Pollution Control for a violation of N.J.A.C. 7:27 et. seq. section

As this particular process/violation has been cited in the past (1979/80) corrective action should be implemented, as any repeated violation will result in legal action being instituted.

☒ Other:

RICHARD J. HILLS

Program Coordinator

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

C# 1064-85, Inspector Praser

CC: N.J. Bureau of Air Pollution Control, XXXXX /C.F.O.

ATTACHMENT 44

Ref Nh 4 p. 413

ATTACHMENT II

VEMINSL5-1 05/10/90
10:54:57

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
STACK LOG LISTING

PAGE 444

PLANT ID COUNTY MUNICIPALITY BUSINESS NAME PLANT NAME PLANT CONTACT
15550 MID SAYREVILLE ESSEX SPECIALTY PRODUCTS, INC. SAYREVILLE HOFFMAN, R.

STACK	CERT	COND	STATUS	EXP. DAT	COMPANY DESIGNATION	LAST INS	BY
004	060511		PERM	01/28/92	502	07/27/89	619
005	060512		PERM	01/28/92	506	07/27/89	619
006	066449		PERM	11/17/93	507	07/27/89	619
007	066450		PERM	11/17/93	508	07/27/89	619
008	066451		PERM	11/17/93	509	07/27/89	619
009	066742		PERM	12/15/93	510	07/27/89	619
010	056452		PERM	11/17/93	511	01/25/84	021
011	060518		DELETE	01/25/92	512	07/27/89	619
012	060519		PERM	01/28/92	505	07/27/89	619
013	063663		EXPD	05/15/89	1-66	07/27/89	619
014	064994		PERM	06/23/93	520	07/27/89	619
015	064995		PERM	06/23/93	521	07/27/89	619
016	064996		PERM	06/23/93	522	07/27/89	619
017	066362		PERM	11/17/93	503	07/27/89	619
018	066363		PERM	11/17/93	504	07/27/89	619
019	070240		PERM	09/01/94	PRIMER DUST COLLECTOR SYSTEM	07/27/89	619
020	075739		PERM	09/15/91	BETABRACE VACUUM SYSTEM	07/27/89	619
021	076113		TEMP	07/16/90	DUST COLLECTOR (BETABRACE)	07/27/89	619
023	088903		TEMP	08/14/93	HOCKMEYER VAC EXHAUST	07/27/89	619
024	091195	X	TEMP	06/02/90	HOCK 393		
025	092347	X	TEMP	07/30/90	225 PLASTISOL MIXERS		

STACK	CERT	COND	STATUS	EXP. DAT	COMPANY DESIGNATION	LAST INS	BY
000			ZERO		MISCELLANEOUS INSPECTIONS		
001			GRAN		BOILER	04/01/87	200
002	074207		PERM	08/21/92	WINDOWS AND DOORS		
003	092688		PERM	05/07/95	NO. 5, EXIT OF CONTROL DEVICE		
004	092689		PERM	05/07/95	NO. 6, EXIT OF CONTROL DEVICE		
006	093211		PERM	05/19/95	23-ROOM EXHAUST VENTS ON RGOF		
007	093212		PERM	05/19/95	24-ROOM EXHAUST VENTS ON RGOF		

STACK	CERT	COND	STATUS	EXP. DAT	COMPANY DESIGNATION	LAST INS	BY
000			ZERO		MISCELLANEOUS INSPECTIONS		

0000 DENOTES UNDEFINED STATUS

ATTACHMENT II

ATTACHMENT JJ

Soil Survey of Middlesex County, New Jersey

By Van R. Powley, Soil Conservation Service

Soils surveyed by Van R. Powley and
David L. Smith, Soil Conservation Service, and
Dana G. Young, New Jersey Department of Agriculture

United States Department of Agriculture, Soil Conservation Service
In cooperation with
New Jersey Agricultural Experiment Station,
Cook College,
Rutgers, the State University, and
New Jersey Department of Agriculture

MIDDLESEX COUNTY is in the east-central part of New Jersey, adjacent to Raritan Bay. New Brunswick, the largest city and the county seat, is at the head of navigation of the Raritan River. It has a population of 595,893, according to the 1980 census.

The county is 318 square miles, or 203,520 acres, 3,840 acres of which is water. In 1982, 106,043 acres in the county was farmland or woodland.

The major waterways in the county are the Raritan, Rahway, South, Millstone, Manalapan, and Matchaponix Rivers. They flow into Raritan Bay.

General Nature of the County

Settlement

The first known visitors to what is now Middlesex County were Giovanni de Verrazano and Henry Hudson in 1609.

The earliest recorded settlement in this county was by immigrants of English descent. They came from the Piscataqua River valley in New Hampshire and from Newbury, Massachusetts. They brought the name Piscataqua with them when they settled in Piscataway in 1666.

New Jersey once was divided into the provinces of East Jersey and West Jersey. In 1682 the New Jersey Assembly subdivided the East Jersey Province into the counties of Middlesex, Monmouth, Essex, and Bergen.

Water Courses and Drainage

The Raritan River flows west to east across the central part of the county and discharges into Raritan Bay. The part of the Raritan River within the county is about 19 miles, nearly 70 percent of which is navigable and tidal.

In the northwestern part of the county, Green Brook forms the boundary between Somerset and Middlesex Counties. Tributaries to Green Brook are Ambrose, Bound, and Bonygutt Brooks. Within Middlesex County, Green Brook has a drainage area of 42 square miles and forms the western boundary of Dunellen and the borough of Middlesex, where it discharges into the Raritan River.

In the north-central part of the county is the Rahway River. It flows in an easterly direction and forms the boundary between Union and Middlesex Counties, where it empties into the Arthur Kill. Approximately 22 square miles of the drainage area of the Rahway River lies within Middlesex County.

ATTACHMENT, 55-1

Ref. No. 4 p. 417

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and Management of the Soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Sassafras sandy loam, 2 to 5 percent slopes, is one of several phases in the Sassafras series.

Some map units are made up of two or more major soils. These map units are called soil complexes, soil associations, or undifferentiated groups.

A *soil complex* consists of two or more soils, or one or more soils and a miscellaneous area, in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Boonton-Urban land complex, 0 to 5 percent slopes is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made of use and management. The pattern and proportion of the soils in the mapped areas are not uniform. An area

can be made up of only one of the major soils, or it can be made up of all of them. Sulfaquents and Sulfahemists, frequently flooded, is an undifferentiated group in this survey area.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Urban land is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

Soil Descriptions

At—Atsion sand. This soil is nearly level and poorly drained. It is along drainageways, in basins, and in low-lying flats. The areas are throughout the southern part of the county. They are irregular in shape and range from 6 to 200 acres.

Typically, the surface is covered by a layer of loose leaves and peat 2 inches thick. The surface layer is black sand 4 inches thick. The subsurface layer is gray sand 12 inches thick. The upper part of the subsoil is dark brown loamy sand 6 inches thick. The lower part of the subsoil is brown sand 14 inches thick. The substratum is brown sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of frequently flooded Humaquepts and Klej, Lakehurst, Mullica, and Manahawkin soils. Included soils make about up to 20 percent of this map unit. The Humaquepts have a less developed subsoil than this Atsion soil. The Klej and Lakehurst soils are somewhat poorly drained or moderately well drained. The Mullica

soils have more clay in the surface layer and subsoil than this Atsion soil. The Manahawkin soils consist of organic material 16 to 51 inches thick over a sandy substratum.

The permeability of this Atsion soil is moderately rapid in the upper part of the subsoil and rapid in the lower part of the subsoil and in the substratum. The available water capacity is low. Additional water is available from the seasonal water table. The organic matter content is moderate. The root zone is restricted by a seasonal high water table that is close to the surface during the winter and spring and is at a depth of 2 to 4 feet in summer. In unlimed areas the surface layer is extremely acid and the subsoil is very strongly acid. The soil is easily worked. Runoff is slow.

Most of the acreage of this soil is in woodland and a dense understory of highbush blueberries, sweet pepperbush, sheep laurel, and greenbriar.

Wetness limits most types of crop production on this soil unless drainage is used. Open ditches or subsurface drains are the common types. In nearby counties this soil is used extensively for blueberries. Ground-water irrigation ponds commonly are constructed on this soil.

This soil is poorly suited to woodland production, and potential productivity is low. Pitch pine, red maple, black gum, swamp white oak, sweet gum, and willow oak are the common tree species. The seasonal high water table limits the harvesting of trees during winter and spring.

The seasonal high water table limits this soil for most types of community development. The water table, low strength, and a potential frost action are limitations of the soil as a site for onsite septic systems, dwellings with basements, and local roads and streets.

Capability subclass: Vw.

BoB—Boonton loam, 2 to 5 percent slopes. This soil is gently sloping and well drained and moderately well drained. It is on rolling hilltops and side slopes in Carteret, Edison, Woodbridge, Metuchen, and Perth Amboy. Slopes are convex or concave. The areas are irregular in shape and range from 5 to 500 acres.

Typically, the surface layer is dark brown loam 10 inches thick. The upper part of the subsoil is yellowish red and dark reddish brown loam 23 inches thick. The lower part is firm, dark reddish brown sandy loam 7 inches thick. The substratum is dark reddish brown sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of soils with a surface layer of silt loam, soils with slopes of less than 2 percent, and somewhat poorly drained Haledon silt loam. They make up as much as 25 percent of this unit. Also included are small areas of Haledon Variant and Klinesville soils that make up as much as 5 percent of the unit. The soil with a surface layer of silt loam, the Haledon soil, and the Haledon Variant soil are mainly in draws, enclosed depressions, and hillside seep

spots. The Klinesville soils are in small isolated spots on side slopes.

The permeability of this Boonton soil is moderate above the firm part of the subsoil and slow in the firm part. The available water capacity is moderate, and runoff is medium. Organic matter content is moderate. Root growth and air and water movement are restricted to a depth of 33 inches by the firm part of the subsoil. The hazard of erosion is moderate. A water table generally is perched for short periods above the fragipan during late winter and early spring. In unlimed areas the surface layer and subsoil are strongly acid.

This soil is suited to cultivated crops and to hay and pasture. Applying lime and fertilizer helps to reduce acidity and improve fertility, and using crop residue on and in the soil maintains organic matter content. Contour tillage, stripcropping, using close-growing crops in the rotation, and establishing grassed waterways where needed are practices that help to control erosion.

The soil is suited to a variety of trees, including yellow-poplar, upland oaks, and white ash. Potential productivity is moderately high. Old field stands are almost all sweetgum and red maple. Potential productivity for those species is fair.

The perched water table and the permeability in the lower part of the subsoil are limitations for community development. Downslope movement of water along the top of the firm part of the subsoil is a hazard to dwellings with basements and to onsite waste-disposal systems.

Capability subclass: I1e.

BoC—Boonton loam, 5 to 10 percent slopes. This soil is sloping and well drained and moderately well drained. It is on rolling side slopes in Perth Amboy, Carteret, upper Edison, and Woodbridge Townships. Slopes are convex or concave. The areas are irregular in shape and range from 5 to 500 acres.

Typically, the surface layer is dark brown loam 8 inches thick. The upper part of the subsoil is yellowish red and dark reddish brown loam 25 inches thick. The lower part is firm, dark reddish brown sandy loam 7 inches thick. The substratum is dark reddish brown sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are areas of somewhat poorly drained Haledon soils, soils with slopes of more than 10 percent, and soils with a surface layer of silt loam. They make up as much as 15 percent of the unit. Also included are small areas of poorly drained Haledon Variant soils and shallow Klinesville soils. They make up as much as 15 percent of the unit. The soil with a surface layer of silt loam, the Haledon soils, and the Haledon Variant soils are mainly in draws and hillside seeps. The Klinesville soils are in small isolated spots on side slopes mainly beside drainageways.

The permeability of this Boonton soil is moderate above the firm part of the subsoil and slow in the firm part. The available water capacity is moderate, and

ATTACHMENT JJ-3
Def No. 4 p. 419

Urbanized areas are in such an intricate pattern that it is not practical to map them separately.

35 percent of this unit is Keyport soils. Typically, there is a surface layer of brown sandy loam 8 inches thick. The subsoil is 26 inches thick. The upper part of the subsoil is yellowish brown sandy loam. The middle part is yellowish brown sandy clay loam. The lower part is brownish gray clay loam. The substratum is light brownish gray silty clay to a depth of 60 inches or more.

35 percent of this unit is areas covered mainly by concrete, asphalt, buildings, or other impervious surfaces.

Included with this unit in mapping are small areas of soils with a surface layer of loamy sand or loam; brown soils with a clayey substratum; areas of soils that have been covered by more than 20 inches of fill material, commonly from adjacent areas of Downer or Evesboro soils that have been cut or graded; and areas where most or all of the original soil has been removed. Together, those areas make up as much as 20 percent of the unit, and they generally are managed the same as Keyport soil. Also included are small areas of Monmouth and Klej soils with a clayey substratum. They make up as much as 10 percent of the unit and are more droughty than Keyport soils. The soils with a surface layer of loamy sand and the Woodstown, Monmouth, and Klej soils are on slight knolls throughout the unit. The soils with a surface layer of loam are throughout the unit.

The permeability in this unit is slow where the soils are relatively undisturbed, and it is variable in areas dominated by cuts, fills, and Urban land. Runoff is medium, and the hazard of erosion is moderate. The available water capacity is high in the relatively undisturbed areas, and it is low to moderate in areas dominated by cuts and fills. Most unlimed areas are very strongly acid.

The undisturbed areas of soils in this unit are mainly in yards and areas around and between buildings and other structures. Those areas range from about 500 to 7,000 square feet. The soils in those areas have fair suitability for lawns, shade trees, shrubs, vines, and vegetable gardens. Areas that have been deeply excavated commonly are clayey and wet. If the substratum is exposed, it commonly is too acid for plants. A cover of nonacid topsoil is needed in such areas.

Capability subclass: not assigned.

KIA—Klej loamy sand, 0 to 3 percent slopes. This soil is nearly level and moderately well drained or somewhat poorly drained. It is on terraces principally in Monroe, East Brunswick, Old Bridge, and Sayreville. Slopes are smooth or convex. The areas are irregular in shape and range from 5 to 150 acres.

Typically, the surface layer is very dark grayish brown loamy sand about 6 inches thick. The subsoil is mostly

yellowish brown, mottled loamy sand 34 inches thick. The substratum is yellowish brown, mottled loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of soils with slopes of more than 3 percent; Evesboro, Lakewood, and Lakehurst soils; and Klej soils with a clayey substratum. Together, they make up as much as 25 percent of the unit, and they generally require the same management as this Klej soil. Also included are small areas of Atsion soils and Humaquepts, frequently flooded, that are wetter than this Klej soil. They make up about 5 percent of the unit. The Atsion soils and Humaquepts are in drainageways. The other inclusions are throughout the unit but are mainly along the edges of the unit.

The permeability of this Klej soil is rapid, and available water capacity is low. The organic matter content is low. Surface runoff is very slow, and the erosion hazard is slight. The root zone extends to a depth of 60 inches but is seasonally restricted by wetness at a depth of about 36 inches. In unlimed areas the surface layer is extremely acid and the subsoil is very strongly acid. Unprotected areas are subject to soil blowing in winter. The seasonal high water table is at a depth of 1.5 to 2 feet from winter to spring.

This soil has fair suitability for cultivated crops and is not well suited to pasture and hay. Early-spring vegetables and other vegetables commonly are grown. The soil can be worked and planted early in the spring if drained. It is easy to maintain good tilth. If this soil is cultivated, drainage, cover crops, and windbreaks help to promote good root growth, control erosion, and prevent wind erosion. Using crop residue on or in the surface layer helps to increase organic matter content and improve available water capacity. Frequent applications of lime and fertilizer are needed for optimum productivity and to prevent excessive loss of plant nutrients by leaching.

This soil is suited to trees, and potential productivity is moderately high. The suitable species are black oak, white oak, and red maple. Trees on this soil grow slowly because of low available water capacity during the growing season. Seasonal wetness limits the use of timber equipment during winter and spring.

The seasonal high water table and the rapid permeability of the soil are the main limitations for community development. The water table is a limitation of the soil as a site for septic systems and dwellings with basements. The permeability causes a hazard of ground-water pollution in areas used as sites for septic systems. The high content of sand in the soil is a limitation for most recreation uses.

Capability subclass: IIIw.

KmA—Klej loamy sand, clayey substratum, 0 to 3 percent slopes. This soil is nearly level and moderately well drained or somewhat poorly drained. It is on divides

ATTACHMENT 55-4
Ref. No. 4 p. 420

25 to 70 feet. The areas are irregular in shape and range from 5 to 60 acres.

Typically, the surface layer is dark reddish brown shaly loam about 6 inches thick. The subsoil is dark reddish brown shaly silt loam 6 inches thick. Dark reddish brown shale bedrock at a depth of 12 inches.

Included with this soil in mapping are small areas of soils with slopes greater than 25 percent, some of which are almost vertical bluffs; soils with no surface layer; and areas of exposed bedrock. These inclusions are throughout the unit and make up as much as 45 percent of the unit. They generally are managed the same as this Klinesville soil. Also included are small areas of Nixon and Nixon Variant soils. They make up as much as 20 percent of the unit.

The permeability of this Klinesville soil is moderately rapid. Available water capacity is low. This soil is subject to frost heaving. Organic matter content is moderate. Runoff is rapid, and the hazard of erosion is severe. The rooting depth is restricted by bedrock. In unlimed areas the surface layer is extremely acid and the subsoil is very strongly acid.

The erosion hazard, the available water capacity, and the slope make this soil poorly suited to cultivated crops. The soil is better suited to pasture, hay, trees, and wildlife habitat. Rooting of most types of plants is restricted by the shallow depth to bedrock.

This soil is fairly well suited to trees, and potential productivity is moderate. The rate of seedling mortality is high, and the use of timber harvesting equipment is limited.

The depth to bedrock, the slope, the available water capacity, and the content of rock fragments limit the soil for most urban uses. The bedrock and slope limit the soil as a site for septic tank absorption fields, dwellings with basements, and lawns and landscaping. The rock fragments, slope, and depth to bedrock are major limitations for most recreation uses.

Capability subclass: VIe.

KWB—Klinesville-Urban land complex, 0 to 5 percent slopes. This unit consists of nearly level to gently sloping, well drained Klinesville soils and areas that are used for urban development. The unit is on ridges and side slopes principally in Edison, New Brunswick, South Brunswick, North Brunswick, and Piscataway Townships. Slopes are smooth. The areas are irregular in shape and range from 20 to 400 acres. The soils and urbanized areas are in such an intricate pattern that it was not practical to map them separately.

About 40 percent of this unit is Klinesville soils. Typically, they have a surface layer of dark reddish brown shaly loam about 8 inches thick. The subsoil is dark reddish brown shaly silt loam 4 inches thick. Dark reddish brown shale bedrock is at a depth of 12 inches.

About 40 percent of this unit is areas covered mainly by concrete, asphalt, buildings, or other impervious surfaces.

Included with this unit in mapping are small areas of soils with a surface layer of silt loam or sandy loam; Penn soils; areas of soils that have been covered by more than 20 inches of fill material, commonly from adjacent areas of Downer soils that have been cut or graded; and areas where most or all of the surface layer has been removed. Together, they make up as much as 15 percent of the unit and generally are managed the same as this Klinesville soil. Also included are small areas of Reaville silt loam that make up as much as 5 percent of the unit. They are not so well drained as the Klinesville soil. The Reaville soil is commonly in drainageways. The other soils are throughout the unit.

The permeability in this unit is moderately rapid. Runoff is slow, and the hazard of erosion is slight. Available water capacity is low in the undisturbed areas and it is low to very low in areas dominated by cuts, fills, and structures. Most unlimed areas are very strongly acid.

The undisturbed areas of soils in this unit are mainly yards and around and between structures. Those areas range from 500 to 7,000 square feet. The soils and fills in those areas are generally suitable for lawns, shade trees, ornamental trees, shrubs and vines, and vegetable gardens. The areas that have been disturbed generally are sandy and droughty and have poor suitability for plants, trees, and grasses.

Capability subclass: VIIs.

LaA—Lakehurst sand, 0 to 3 percent slopes. This soil is nearly level and moderately well drained or somewhat poorly drained. It is on divides and terraces principally in Monroe, East Brunswick, and Old Bridge Townships. The areas are irregular in shape and range from 5 to 100 acres.

Typically, the surface layer is black sand about 3 inches thick. The subsurface layer is light brownish gray sand 18 inches thick. The upper part of the subsoil is mottled, yellowish red sand 3 inches thick. The lower part of the subsoil is mottled, yellow sand 16 inches thick. The substratum is mottled, light gray sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Lakewood and Klej soils, soils with a surface layer more than 24 inches thick, and Lakehurst soils with slopes of more than 3 percent. Together, they make up as much as 20 percent of the unit, and they generally are managed the same as this Lakehurst soil. Also included are small areas of soils that have clay beds at a depth of 40 to 60 inches. They are throughout the unit, principally on side slopes, and they make up as much as 20 percent of the unit.

The permeability of this Lakehurst soil is rapid, and available water capacity is low. The seasonal high water

ATTACHMENT JJ-5
Ref NO. 4 0 421

Included with this soil in mapping are small areas of soil similar to this Tinton soil but with more glauconite, thicker or thinner surface layer, or a surface layer of sandy loam and areas of Fort Mott soils. They make up as much as 25 percent of the unit and generally are mapped the same as this Tinton soil. Also included are small areas of Pemberton, Holmdel, and Shrewsbury soils that make up about 15 percent of the unit. They are in depressions or low positions. The other inclusions are throughout the unit.

The permeability of this Tinton soil is moderate or moderately rapid. Available water capacity is moderate. Runoff is slow, and the erosion hazard is moderate. Organic matter content is low, and natural fertility is medium. Tilth is good. In unplowed areas the surface layer is extremely acid and the subsoil and substratum are very strongly acid. The depth to the substratum ranges from 20 to 36 inches but is generally 24 to 30 inches.

This soil is suited to cultivated crops, pasture, or woodland. Vegetables and fruits are the common crops.

The main management concerns are the hazard of erosion, low fertility, droughtiness, and the need to increase the organic matter content. Soil blowing is severe if areas are unprotected in winter. Using crop residue maintains or increases organic matter content and reduces soil blowing. The use of lime and fertilizer offsets acidity and low fertility. Conservation tillage and use of cover crops and grasses and legumes in the cropping system help to reduce runoff and erosion.

This soil is suited to pasture, but the moderate available water capacity is a limitation. Proper seeding, proper stocking, and rotation grazing are the major management practices on this soil.

This soil is suited to trees, and potential productivity is moderately high. Black oak, white oak, and scarlet oak are common in most places, but pines are common where fields have been left idle. Protection from fire is the major management concern.

This soil is generally suitable for most urban uses. The texture of the surface layer and substratum limit the soil as a site for lawns, landscaping, and golf fairways. Some recreation uses are limited by slope.

Capability subclass: IIIs.

UB—Udorthents, bedrock substratum. This unit is nearly level to gently sloping. The areas are irregular in shape and range mainly from 2 to 15 acres. Most areas are smaller than 5 acres. The most extensive areas are principally in Edison, New Brunswick, and North Brunswick Townships.

This unit has been cut and smoothed or otherwise extensively disturbed to a depth of 3 feet or more. The original soil has been removed.

Included with this unit in mapping are small areas of Lincville, Reaville, Reaville Variant, and Ellington soils on uplands and along the perimeter of the disturbed

areas. Small areas of Udorthents, wet substratum, and Urban land are also included.

Some areas of this unit are in native vegetation. Some areas are used for parking lots, landfills, or recreation areas. The variability of the characteristics of this unit makes onsite investigation necessary to determine the suitability of the unit for any use.

Capability subclass: not assigned.

UC—Udorthents, clayey substratum. This unit consists of deep, moderately well drained to somewhat poorly drained soils mostly in regraded clay pits or borrow areas. The surface has been smoothed, and the areas are nearly level.

Most areas of this unit are used for residential, commercial, or industrial development. The variability of the characteristics of the unit makes onsite investigation necessary to determine the suitability of the unit for any use.

Capability subclass: not assigned.

UD—Udorthents, wet substratum-Urban land complex. This unit consists of moderately deep, moderately well drained, loamy soil and urbanized areas. The areas are principally in housing developments or apartment complexes. They dominantly are graded spoil excavated for cellars or foundations or that has been trucked in from nearby areas.

The Udorthents in this unit have a seasonal high water table near the surface. In some areas fill material has been used to cover the water table and thus improve the suitability of the unit as a building site. The thickness of the fill material is 2 to 4 feet, and the average thickness is about 30 inches. The Udorthents are mainly in areas of Fallsington Variant, Reaville Variant, and Parsippany Variant soils.

The variability of the characteristics of this unit makes onsite investigation necessary to determine the suitability of the unit for any use.

Capability subclass: not assigned.

UL—Urban land. This unit consists of areas where more than 80 percent of the surface is covered by industrial plants, shopping and business centers, and other structures. These areas are nearly all in the highly populated northern half of the county. The areas generally range from 2 to 1,000 acres. Most are nearly level to moderately sloping, but a few are strongly sloping and steep. Fill material has been used in places to build up wet soils. Most areas have been excavated or filled with material that is now almost totally paved.

Onsite investigation is needed to determine the potentials and limitations of this unit for any use.

Capability subclass: not assigned.

Wa—Watchung very stony silt loam, 0 to 2 percent slopes. This soil is nearly level and poorly drained. It is

ATTACHMENT JJ-6
Ref. No. 4 p. 422

Ref No 4 0.4 23

ATTACHMENT KK

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Woodward-Clyde Consultants

April 12, 1991
90X4293

New Jersey Department of Environmental Protection
Division of Hazardous Waste Management
Cleanup Oversight Section
401 East State Street, CN 028
Trenton, New Jersey 08625-0028

APR 15 12 01 PM '91
RECEIVED
DIVISION OF
HAZARDOUS WASTE
MANAGEMENT
EVALUATION

Attention: Mr. William J. Hadsell, Jr.

Subject: Progress Report No. 5, March 1991
Essex Specialty Products, Inc.
Sayreville, NJ Facility
ECRA Case No. 88904

Gentlemen:

In accordance with the requirements of the ECRA Cleanup Plan Guide dated August 13, 1990, Woodward-Clyde Consultants, on behalf of Essex Specialty Products, Inc. (ESP) hereby submits Progress Report No. 5 providing information about cleanup activities at the above-referenced site during March 1991. This progress report discusses the following subjects:

- Changes to Schedule;
- Completed Work-to-Date;
- Percent Work Completed;
- Project Costs-to-Date; and
- Project Work Outstanding.

Changes to Schedule

Based on our March 6, 1991 telephone conversation, it is our understanding that the cleanup calendar for the Sayreville facility began with the receipt of the wetlands permit dated February 7, 1991. Therefore, the start of the ECRA cleanup schedule has been adjusted accordingly. Based on post-excitation soil sample and sump water analytical results discussed below, ESP concluded that additional excavation/sampling is necessary to meet

Consulting Engineers, Geologists
and Environmental Scientists
Offices in Other Principal Cities

ATTACHMENT

REF NO 4 0.424

KE-1

Mr. William J. Hadsell, Jr.
ms91-097 - April 12, 1991
Page 2

the requirements of this ECRA Cleanup. The project schedule has been adjusted accordingly. The revised project schedule for this ECRA program is provided as Figure 1.

Completed Work-to-Date

On February 27, 1991, mobilization activities commenced at the Sayreville facility for the ECRA cleanup of Area 1. Trees and underbrush were removed, where appropriate, within the area to be excavated in accordance with the approved Wetlands General Permit. Soil erosion control measures were taken, i.e., installation of silt fences and hay bales, in accordance with the approved Soil Erosion and Sediment Control Plan.

As discussed in last month's progress report, soil samples were collected on January 30, 1991 from the interval from 12 inches to 18 inches beneath the base of Sewer Drain Nos. 5 and 11 at the Sayreville facility in accordance with the September 20, 1990 NJDEP ECRA Cleanup Plan Approval letter. Per your request, this information is included again in this month's progress report. A 3 inch diameter concrete core drill was used by Direct Environmental, Inc. (Direct) to advance a hole to the required depth. A decontaminated bucket auger was then used to collect the soil samples. Samples were transferred to laboratory glass jars with decontaminated stainless steel spoons. Samples were analyzed by Nytest Environmental, Inc., a New Jersey certified analytical laboratory and data validation performed by WCC. The Quality Control/Quality Assurance (QA/QC) package for these analytical results are enclosed as Appendix 1 with this report. The following is a summary of the analytical results:

ATTACHMENT

KK-2
Ref. No. 4 P. 425

Woodward-Clyde Consultants

Mr. William J. Hadsell, Jr.
ms91-097 - April 12, 1991
Page 3

<u>Sample ID</u>	<u>Sample Location</u>	<u>Sample Depth</u>	<u>Analytical Parameters</u>	<u>Analytical Results</u>
SD11-1	Sewer Drain No. 11	12-18"	TPH BN+15	81.9 mg/kg ⁽¹⁾ Di-n-butylphthalate@ 2500 mg/kg
SD11-D	Sewer Drain No. 11 (DUP)	12-18"	TPH BN+15	67.3 mg/kg Di-n-butylphthalate@ 1100 mg/kg
SD5-1	Sewer Drain No. 5	12-18"	TPH BN+15	107 mg/kg Di-n-butylphthalate@ 3000 mg/kg
Field Blank	--	--	TPH BN+15	0.4 mg/l Non-detected

(1) Dry weight basis

The stated cleanup level for non-carcinogenic base neutral compounds is 100 ppm. As stated above, the only base neutral compound detected in the soil samples was di-n-butylphthalate with concentrations ranging from 1100 mg/kg to 3000 mg/kg. These levels are greater than the stated cleanup level and additional excavation/post-excavation sampling will be performed for Sewer Drains Nos. 5 and 11.

Between March 12 and March 19, 1991, soil excavation activities associated with the remediation of Area 1 were completed in accordance with the September 20, 1990 NJDEP ECRA Cleanup Approval letter. Within that time period, the following subareas were excavated:

<u>Area 1 Subarea</u>	<u>Depth of Excavation (ft)</u>	<u>Excavation Date</u>
A	Sump Installation	March 13, 1991
B-1	5	March 18 and 19, 1991
B-2	1	March 12 and 13, 1991
B-3	2	March 14 and 18, 1991
D	0.5	March 19, 1991

ATTACHMENT KE-3
Ref No 4 0.426

Mr. William J. Hadsell, Jr.
ms91-097 - April 12, 1991
Page 4

Subarea C, located within subarea B-3, was not treated as a separate subarea for practical reasons. Instead, it was included with the B-3 excavation since subarea C's excavation depth was six inches and was surrounded by the two foot excavation depth of B-3.

An abandoned 12 inch diameter pipe was discovered on March 14, 1991 within subarea B-3. Site personnel indicated that the pipe connected to the floor drains within the on-site building and was decommissioned several years ago. Approximately 50 ft of the pipe was removed and the end property capped on March 31, 1991. The soil beneath the pipe at the cap was sampled along with the water within the pipe.

Post-excavation soil samples were collected and analyzed in Subareas B-1, B-2, B-3 and D. Subarea A is being excavated to facilitate the installation of a sump as part of a seep remediation program and post-excavation samples were not required.

Post-excavation soil samples were collected manually using decontaminated stainless steel sampling trowels and/or spoons in accordance with the NJDEP Field Procedures Manual, dated February 1988. These procedures are discussed below. Post-excavation soil samples were collected 0-6" in depth along the sidewalls of the excavation, mid-way between the top and base of the excavation at 20 ft intervals (minimum of one sample per sidewall). Additional samples were collected from along the base of the excavation on a 20 foot grid system (at least one sample per excavation base) if groundwater was not encountered.

Post-excavation soil samples were analyzed for total petroleum hydrocarbons (TPH) by a certified analytical laboratory utilizing an expedited analytical turnaround time. If the analytical results indicated TPH concentrations greater than 500 ppm, the soil samples were analyzed for benzene, toluene and xylene (BTX) and base/neutral extractables plus a forward library search (BN+15).

Surficial soil samples were collected from 0-6" at all post-excavation sampling locations. A decontaminated stainless steel sampling spoon or trowel was used to dig a 4 to 6 inch diameter excavation at each sampling point. The samples were scraped from the side wall of the excavation with a stainless steel trowel and transferred to the appropriate laboratory prepared sample containers. The spoon and stainless steel trowels were decontaminated in accordance with NJDEP decontamination procedures as follows:

1. non-phosphate detergent and tap water wash
2. tap water rinse
3. deionized/distilled water rinse

ATTACHMENT

KK-4

Reference No. 4 p. 4.27

Mr. William J. Hadsell, Jr.
ms91-097 - April 12, 1991
Page 5

4. 10% nitric acid rinse
5. deionized/distilled water rinse
6. acetone (pesticide grade) rinse
7. total air dry or pure nitrogen blow out
8. deionized/distilled water rinse

Once the sample was transferred into the appropriate container, the jar was capped and, if necessary, the outside was wiped with a clean paper towel to remove excess material. If this was ineffective, the jar was not submerged in water in an effort to clean it. Rather, if necessary, a clean paper towel moistened with distilled/deionized water was used.

The sample jar was then properly labeled, preserved if necessary, custody sealed, and placed in a plastic bag. Information such as sample number, location, collection time and sample description was recorded in the field logbook. Associated paperwork (e.g., Chain of Custody forms, Sample Analysis Request forms) was then completed and remained with the sample. The samples were packaged in a manner that allowed the appropriate storage temperature to be maintained during shipment to the laboratory. Samples were delivered to the laboratory within 24 hours so that proper temperature maintenance was assured and analytical holding times were not exceeded.

One field blank was collected per day of soil sampling and analyzed for the same parameters as described above. Field blanks were collected for each parameter by decanting laboratory supplied water over the decontaminated sampling equipment used in sample collection into laboratory supplied bottles containing the appropriate preservatives. The field blank was then cooled along with the rest of the samples and delivered to the laboratory.

The sump water sample results and associated field and trip blanks are presented in Table 1. Post-excavation soil sample analytical results and associated field blanks are presented in Table 2. The abandoned pipe water and soil samples were being reviewed and validated at the time of this report and will be included in next month's progress report. Sample locations are provided in Figures 2 and 3 attached. The QA/QC package for these analytical results are provided as Appendix 1 along with this report.

On March 27, 1991, transport of excavated soil to Wayne Disposal, Inc. in Belleville, Michigan commenced and was completed on April 2, 1991.

ATTACHMENT

KK-5

Ref. No. 4 p. 428

Mr. William J. Hadsell, Jr.
ms91-097 - April 12, 1991
Page 6

Mr. William Hadsell, Jr., NJDEP Case Manager for this ECRA program, stated in a telephone conversation to WCC that post-excavation soil samples were to be collected at the base of the excavation within Area 1 even though the vertical limit of excavation is at or slightly below the groundwater table. In addition, Mr. Hadsell stated that the site ground monitoring wells should be sampled subsequent to validation that post-excavation sample levels are below the cleanup levels and no additional soil excavation in Area 1 is required. These telephone conversations have been documented in a March 20, 1991 memorandum from WCC to Mr. Hadsell.

Percent Work Completed

As of the preparation of this Progress Report, additional excavation activities in subareas B-1 and B-2 are underway at the facility along with the excavation of Sewer Drain Nos. 5 and 11. The completed soil excavation and sampling along with the sump installation and completed sewer drain sampling constitute approximately 75% of the work to be performed.

Project Costs-to-Date

The costs-to-date associated with the percent work completed is approximately \$270,000.

Project Work Outstanding

Activities Planned for April 1991

The additional excavation and post-excavation sampling of subareas B-1 and B-2 and Sewer Drains Nos. 5 and 11 are scheduled to commence in early April. Additionally, MCUA approval of sump water discharge into their system will be pursued in April.

Future Work

Site activities not yet initiated include sampling of the monitoring wells.

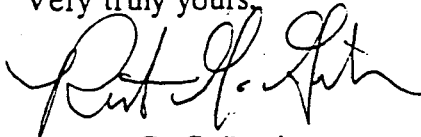
ATTACHMENT KK-6

Ref. No. 4 p. 429

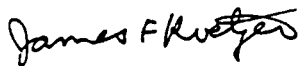
Mr. William J. Hadsell, Jr.
ms91-097 - April 12, 1991
Page 7

If you should have any questions regarding this progress report, please do not hesitate to contact us.

Very truly yours,



Robert G. Gaibrois
Project Manager



James F. Roetzer
Senior Associate

RGG:JFR:mds

cc: Mr. Ben Baker, Dow Chemical USA
Tricia M. Caliguire, Esq., McCarter & English
Ms. Deborah Rosenthal, Essex Specialty Products, Inc.
Mr. David Courter, Essex Specialty Products, Inc.

ATTACHMENT

KK-7

Ref No. 4 p. 430

TABLE 1
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ECRA CASE NO. 88904
SUMP WATER SAMPLE
ANALYTICAL RESULTS SUMMARY

Sample ID:	SW-1	FB 3/13	TB 3/13
Sample Date:	3/13/91	3/13/91	3/13/91
Matrix:	water	water	water
ORGANICS:			
Volatile Organic Compounds (Total) (1)	ppb	62	
methylene chloride	2 JB	4 J	3 J
2-propanone	2 JB	18	17
benzene	3 J		
toluene	8		
ethylbenzene	3 J		
xylene	48		
Tentatively Identified Compounds	ppb		
(1) unknown	43 J		
Base Neutral Compounds (Total) (1)	ppb	8162	NR
di-n-butyl phthalate	3 JB	2 JB	
bis (2-ethylhexyl) phthalate	8100 B	190 B	
di-n-octyl phthalate	62		
Tentatively Identified Compounds	ppb		
(7) unknowns	4 J - 200 J		NR
Acid Extractable Compounds (Total) (1)	ppb		NR
benzoic acid	1 J		
Pesticide/PCBs (Total) (1)	ppb		NR
None			
INORGANICS			
zinc	ppm	0.15	

Notes: (1) = The fraction totals are cumulative values of all analytes in that fraction excluding the analytes which are B - qualified.

B = indicates the analyte is strictly associated with blank (i.e. trip, field or laboratory method blank). As such, the value which is B - qualified is not summed into the total for that particular fraction (i.e. volatile organic compounds (total)). Also, bis (2-ethylhexyl) phthalate which has a value (8100 ug/l) greater than 3 times its associated blank value (190B ug/l) is considered real. As such, the compound is part of the total base neutral summation. NJDEP protocols consider analyte values less than 3 times the associated blank value as rejected (unusable).

J = indicates an estimated value (i.e. value is reported below the CRQL (CRDL)).

NR = not required to be analyzed in accordance with NJDEP field sampling protocols (i.e. trip blank analysis warranted only for the VOA fraction analysis). The writer is also aware, recent promulgation warrants a trip blank to be associated with VOA water samples not VOA soil samples.

ATTACHMENT

KK-8

Ref. No. 4 p. 431

TABLE 2
 ESSEX SPECIALTY PRODUCTS, INC.
 SAYREVILLE, NEW JERSEY
 ECRA CASE NO. 88904
 POST EXCAVATION
 SOIL SAMPLING ANALYTICAL RESULTS SUMMARY

		Sample ID:	FB 3-19	B1-1	B1-2	B1-3	B1-4	B1-5	B1-6	B1-7	B1-8
		Sample Date:	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91
		Sampling Depth:	-	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"
		Trench Location:	-	sidewall	base	sidewall	base	sidewall	base	sidewall	base
		Matrix:	water	soil	soil	soil	soil	soil	soil	soil	soil
		Units:	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
		NJDEP ECRA									
		Approved Cleanup Levels (1)									
		PPM									
TOTAL PETROLEUM HYDROCARBONS (4)		Not Specified by NJDEP	< 0.2	88.8	961	147	491	358	239	871	679
ORGANICS:											
Volatile Organic Compounds (Total) (2)		See Note (5)	NR	NR	4.3078	NR	NR	NR	NR	0.234	7.374
benzene					0.070					0.003	0.029
toluene					0.008					0.001 J	0.045
xylene (total)					4.3					0.230	7.300
Base Neutral Compounds (Total) (2)		100 Non-carcinogenic BNs	0.006	NR	1814.18	NR	NR	NR	NR	590.7	962.75
2-methylnaphthalene					0.230 J					0.140 J	0.290 J
dibenzofuran											0.079 J
di-n-butyl phthalate					0.640 J					0.400 J	0.770 J
bis (2-ethylhexyl) phthalate		83	0.006 J		1800 B					590 B	940 B
di-n-octyl phthalate					13						21
naphthalene					0.100 J						0.045 J
acenaphthylene											0.039 J
fluorene											0.110 J
phenanthrene					0.210 J					0.190 J	0.210 J
anthracene											0.077 J
fluoranthene											
N-nitrosophenylamine											0.130 J
pyrene											
Tentatively Identified Compounds (3)											
unknowns					(14) 1.6J - 45J					(14) 1.1J - 10.0J	(14) 1.4J - 17.0J
substituted benzene					(1) 1.6J						1.7 J
substituted naphthalene										1.6 J	

Ret. No. 4 P. 42
 KK-9

TABLE 2 (CONTINUED)
 ESSEX SPECIALTY PRODUCTS, INC.
 SAYREVILLE, NEW JERSEY
 ECRA CASE NO. 88904
 POST EXCAVATION
 SOIL SAMPLING ANALYTICAL RESULTS SUMMARY

		Sample ID:	B1-9	B1-10	B1-11	B1-12	B1-13	B1-14	B1-15	B1-16	B1-17	B1-18
		Sample Date:	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91
		Sampling Depth:	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"
		Trench Location:	sidewall	base	sidewall	base	sidewall	base	sidewall	base	sidewall	base
		Matrix:	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil
		Units:	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
		NUDEP ECRA										
		Approved Cleanup Levels (1)										
		PPM										
TOTAL PETROLEUM HYDROCARBONS (4)		Not Specified by NUDEP	181	740	280	127	79.9	78.9	138	187	108	408
ORGANICS:												
Volatile Organic Compounds (Total) (2)		See Note (5)	NR	5.95	NR	NR	NR	NR	NR	NR	NR	NR
benzene				0.038								
toluene				0.012								
xylene (total)				5.9								
Base Neutral Compounds (Total) (2)		100 Non-carcinogenic BNs	NR	1100.97	NR	NR	NR	NR	NR	NR	NR	NR
2-methylnaphthalene				0.100 J								
dibenzofuran												
di-n-butyl phthalate				0.740 J								
bis (2-ethylhexyl) phthalate		83		1100 B								
di-n-octyl phthalate												
naphthalene												
acenaphthylene												
fluorene												
phenanthrene				0.130 J								
anthracene												
fluoranthene												
N-nitrosophenylamine												
pyrene												
Tentatively Identified Compounds (3)												
unknowns				(11) 1.2J - 11.0J								
substituted benzene				(4) 1.3J - 7.5J								
substituted naphthalene												

TABLE 2 (CONTINUED)
 ESSEX SPECIALTY PRODUCTS, INC.
 SAYREVILLE, NEW JERSEY
 ECRA CASE NO. 88904
 POST EXCAVATION
 SOIL SAMPLING ANALYTICAL RESULTS SUMMARY

		Sample ID:	FB 3-13	FB 3-14	B2-1	B2-2	B2-3	B2-4	B2-5	B2-6	B2-7
		Sample Date:	3/13/91	3/14/91	3/13/91	3/13/91	3/13/91	3/13/91	3/14/91	3/14/91	3/14/91
		Sampling Depth:			0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"
		Trench Location:			sidewall	base	sidewall	base	sidewall	base	sidewall
		Matrix:	water	water	soil	soil	soil	soil	soil	soil	so
		Units:	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
		NJDEP ECRA									
		Approved Cleanup Levels (1)									
		PPM									
TOTAL PETROLEUM HYDROCARBONS (4)		Not Specified by NJDEP	<0.2	<0.2	1090	638	1040	824	188	165	337
ORGANICS:											
Volatile Organic Compounds (Total) (2)		See Note (5)	ND	ND	ND	ND	ND	ND	NR	NR	NR
benzene											
toluene											
xylene (total)											
Base Neutral Compounds (Total) (2)		100 Non-carcinogenic BNs		0.020	1423.2	1108.749	27.188	19.7	NR	NR	NR
2-methylnaphthalene											
dibenzofuran											
di-n-butyl phthalate			0.008	0.009	1.20	4.60	8.00	9.80			
bis (2-ethylhexyl) phthalate		83	0.008 JB	0.011	1400	1100	17.0	9.90			
di-n-octyl phthalate					22.0	4.00	0.068				
naphthalene											
acenaphthylene											
fluorene											
phenanthrene						0.084J	0.500J				
anthracene											
fluoranthene						0.085J	0.920 J				
N-nitrosophenylamine											
pyrene							0.710 J				
Tentatively Identified Compounds (3)											
unknowns					(14) 0.51J - 2.8J	(14) 0.68J - 8.7J	(14) 2.9J - 25.0J	(14) 1.6J - 9.5J			
substituted benzene					(1) 0.630 J	(1) 4.4 J	(1) 22.0J	3.1			
substituted naphthalene											

TABLE 2 (CONTINUED)
 ESSEX SPECIALTY PRODUCTS, INC.
 SAYREVILLE, NEW JERSEY
 ECRA CASE NO. 88904
 POST EXCAVATION
 SOIL SAMPLING ANALYTICAL RESULTS SUMMARY

		Sample ID:	B2-8	B2-9	B2-10	B2-11	B2-12	B2-13	B2-14	B2-15	B2-16	B2-17
		Sample Date:	3/14/91	3/14/91	3/14/91	3/14/91	3/14/91	3/14/91	3/14/91	3/14/91	3/14/91	3/14/91
		Sampling Depth:	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"
		Trench Location:	base	base	base	base	base	sidewall	base	sidewall	base	base
		Matrix:	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil
		Units:	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
		NJDEP ECRA										
		Approved Cleanup Levels (1)										
		PPM										
TOTAL PETROLEUM HYDROCARBONS (4)		Not Specified by NJDEP	<10.0	41.8	161	201	101	139	18.3	61.9	110	244
ORGANICS:												
Volatile Organic Compounds (Total) (2)		See Note (5)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
benzene												
toluene												
xylene (total)												
Base Neutral Compounds (Total) (2)		100 Non-carcinogenic BNs	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2-methylnaphthalene												
dibenzofuran												
di-n-butyl phthalate												
bis (2-ethylhexyl) phthalate		83										
di-n-octyl phthalate												
naphthalene												
acenaphthylene												
fluorene												
phenanthrene												
anthracene												
fluoranthene												
N-nitrosophenylamine												
pyrene												
Tentatively Identified Compounds (3)												
unknowns												
substituted benzene												
substituted naphthalene												

TABLE 2 (CONTINUED)
 ESSEX SPECIALTY PRODUCTS, INC.
 SAYREVILLE, NEW JERSEY
 ECRA CASE NO. 88904
 POST EXCAVATION
 SOIL SAMPLING ANALYTICAL RESULTS SUMMARY

		Sample ID:	FB 3-18	B3-1	B3-2	B3-3	B3-4	B3-5	B3-6	B3-7	B3-8	B3-9	B3-10
		Sample Date:	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91
		Sampling Depth:		0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"
		Trench Location:		base	sidewall	base	base	base	sidewall	base	base	base	sidewall
		Matrix:	water	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil
		Units:	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
		NJDEP ECRA											
		Approved Cleanup Levels (1)											
		PPM											
TOTAL PETROLEUM HYDROCARBONS (4)		Not Specified by NJDEP	<0.2	36.9	22.8	31	174	<10	39.8	34.9	51.4	140	214
ORGANICS:													
Volatile Organic Compounds (Total) (2)		See Note (5)		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
benzene													
toluene													
xylene (total)													
Base Neutral Compounds (Total) (2)		100 Non-carcinogenic BNs	0.018	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2-methylnaphthalene													
dibenzofuran													
di-n-butyl phthalate			0.006 J										
bis (2-ethylhexyl) phthalate		B3	0.012 B										
di-n-octyl phthalate													
naphthalene													
acenaphthylene													
fluorene													
phenanthrene													
anthracene													
fluoranthene													
N-nitrosophenylamine													
pyrene													
Tentatively Identified Compounds (3)													
unknowns			0.004 J										
substituted benzene													
substituted naphthalene													

Ref. No. 4 p. 43
 KK-13

TABLE 2 (CONTINUED)
 ESSEX SPECIALTY PRODUCTS, INC.
 SAYREVILLE, NEW JERSEY
 ECRA CASE NO. 88904
 POST EXCAVATION
 SOIL SAMPLING ANALYTICAL RESULTS SUMMARY

		Sample ID:	B3-11	B3-12	B3-13	B3-14	B3-15	D-1	D-2	D-3	D-4	D-5
		Sample Date:	3/18/91	3/18/91	3/18/91	3/18/91	3/18/91	3/19/91	3/19/91	3/19/91	3/19/91	3/19/91
		Sampling Depth:	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"
		Trench Location:	base	sidewall	base	sidewall	base	base	sidewall	base	sidewall	base
		Matrix:	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil
		Units:	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
		NJDEP ECRA										
		Approved Cleanup Levels (1)										
		PPM										
TOTAL PETROLEUM HYDROCARBONS (4)		Not Specified by NJDEP	430	314	628	116	109	60	66.5	67.4	67.6	120
ORGANICS:												
Volatile Organic Compounds (Total) (2)		See Note (5)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
benzene												
toluene												
xylene (total)												
Base Neural Compounds (Total) (2)		100 Non-carcinogenic BNs	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2-methylnaphthalene												
dibenzofuran												
di-n-butyl phthalate												
bis (2-ethylhexyl) phthalate		83										
di-n-octyl phthalate												
naphthalene												
acenaphthylene												
fluorene												
phenanthrene												
anthracene												
fluoranthene												
N-nitrosophenylamine												
pyrene												
Tentatively Identified Compounds (3)												
unknowns												
substituted benzene												
substituted naphthalene												

Ref. No. 4 p. 437

TABLE 2 (CONTINUED)
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ECRA CASE NO. 88904
POST EXCAVATION
SOIL SAMPLING ANALYTICAL RESULTS SUMMARY

- 1 - Approved ECRA cleanup levels as stated in the September 20, 1990 NJDEP ECRA Cleanup Plan Approval Letter.
- 2 - The fraction totals are cumulative values of all analytes in that fraction excluding the analytes which are B - qualified.
- 3 - The number in parenthesis indicates the number of tentatively identified compounds determined for that particular analyte or category followed, by the associated concentration value or range. The data user should realize the TIC flagged with an A is an aldol condensation product (laboratory artifact) and is not considered a site TIC contaminant.
- 4 - Refer to the NR flag below concerning TPH values > 500 ppm triggering BTX and BN + 15 analyses.
- 5 - Approved cleanup levels for volatile organic compounds are as follows:
if the benzene concentration is less than 1 ppm: a 100 ppm cleanup level applies
if the benzene concentration is greater than 1 ppm: a 1 ppm cleanup level applies

The following key applies to the table:

B = Indicates the analyte is associated with a field or laboratory blank (i.e. trip, field or laboratory method blank) contamination. The B analyte value will not be summed into the total for a particular fraction (i.e. volatile organic compounds (total), if the value is less than 3 times the associated blank value a analyte value greater than 3 times its associated blank value is therefore considered real and a probable site contaminant.

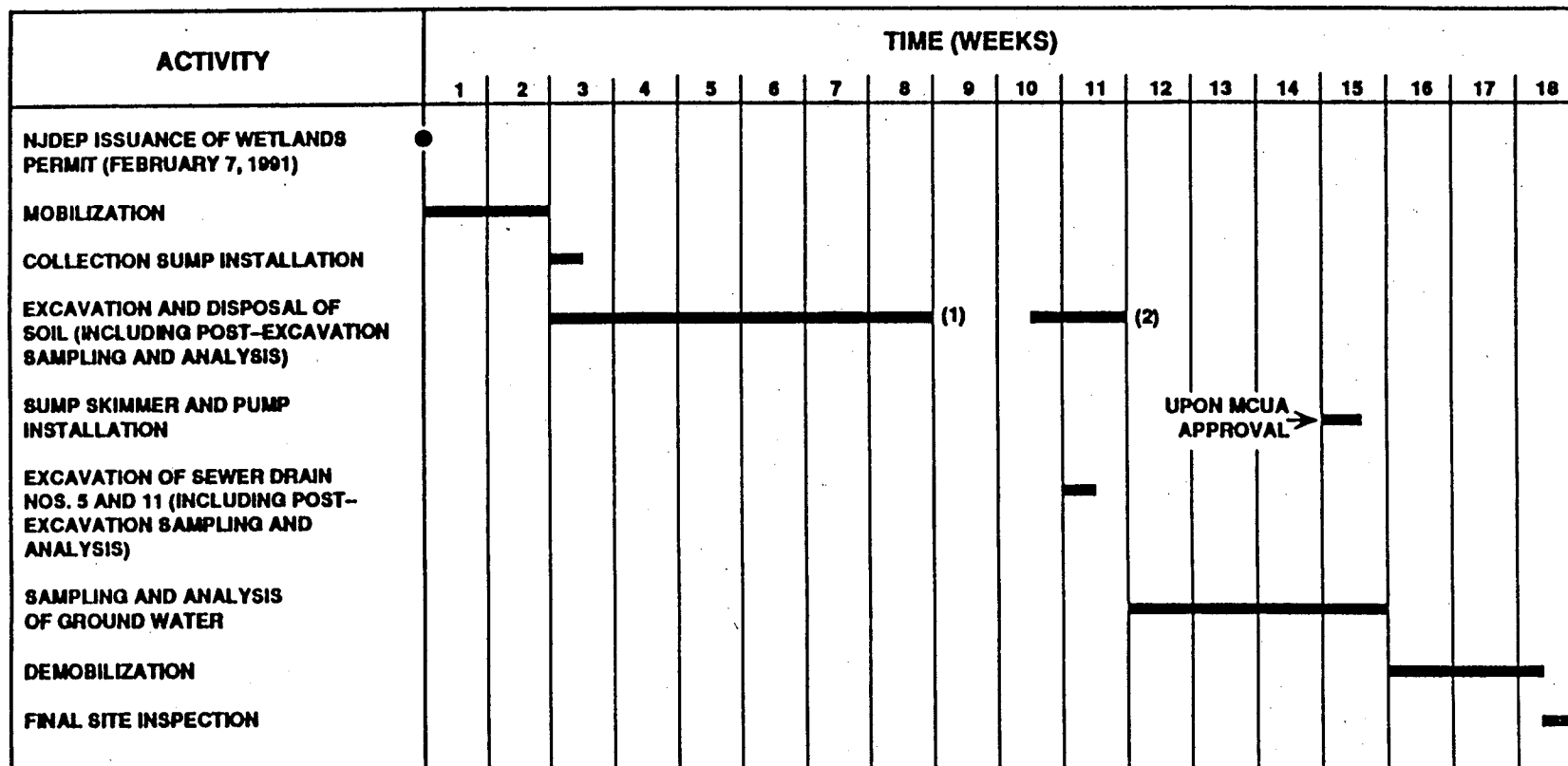
NR = Not required to be analyzed in accordance with NJDEP instructions. Specifically, only those samples that contained total petroleum hydrocarbon (TPH) concentrations greater than 500 ppm were to be analyzed BTX (benzene, toluene, xylenes-total) and base neutral (BN) plus 15 (TIC).

Numbers in bold type exceed the specified cleanup levels.

ATTACHMENT

FILE-15

Ref. No. 4P-428



NOTE:

- (1) IT IS THE INTENT OF THIS PROGRAM TO COMPLETE SOIL EXCAVATION BY MAY 1, 1991 (ONE MONTH PRIOR TO THE JUNE 1, 1991 LAND BAN EXTENSION FOR THE SITE SPECIFIC PHTHLATE OF CONCERN).
- (2) ADDITIONAL EXCAVATION AND DISPOSAL OF SOIL (EXCLUDING POST-EXCAVATION SAMPLING AND ANALYSIS) BASED ON ANALYTICAL RESULTS OF POST-EXCAVATION SAMPLES.

**PROJECT SCHEDULE
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ECRA CASE NO. 88904**

FIGURE 1

ATTACHMENT

KFC-16

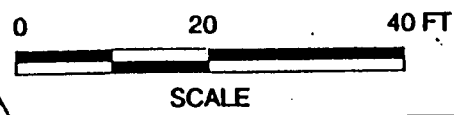
205.06.4 0.439

Ref. No. 4 P. 440

ATTACHMENT KF-17

LEGEND

- SIDEWALL POST EXCAVATION
SAMPLE LOCATION (APPROXIMATE)
- BASE POST-EXCAVATION
SAMPLE LOCATION (APPROXIMATE)

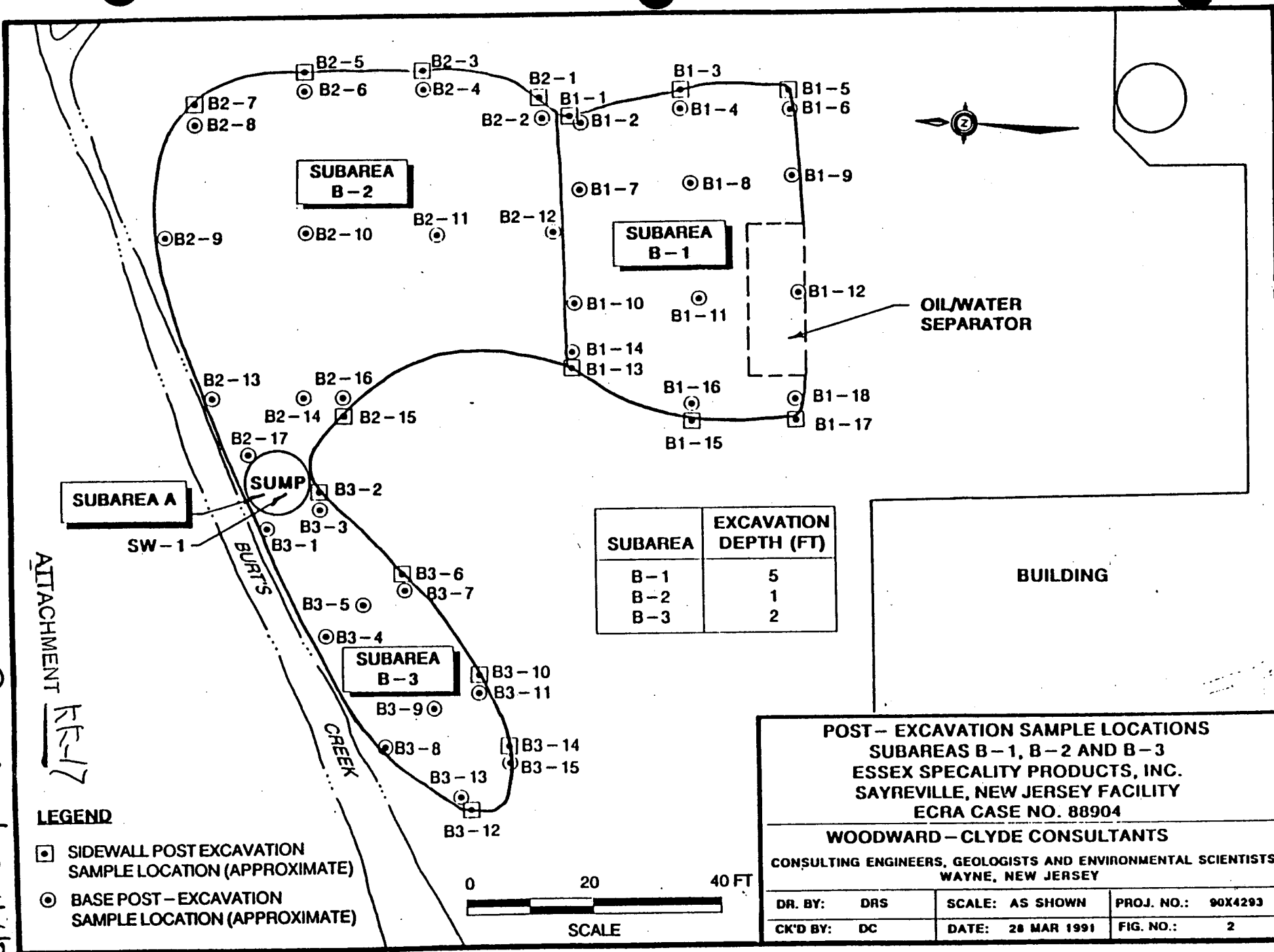


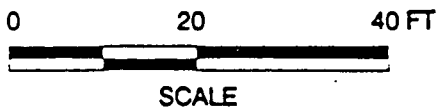
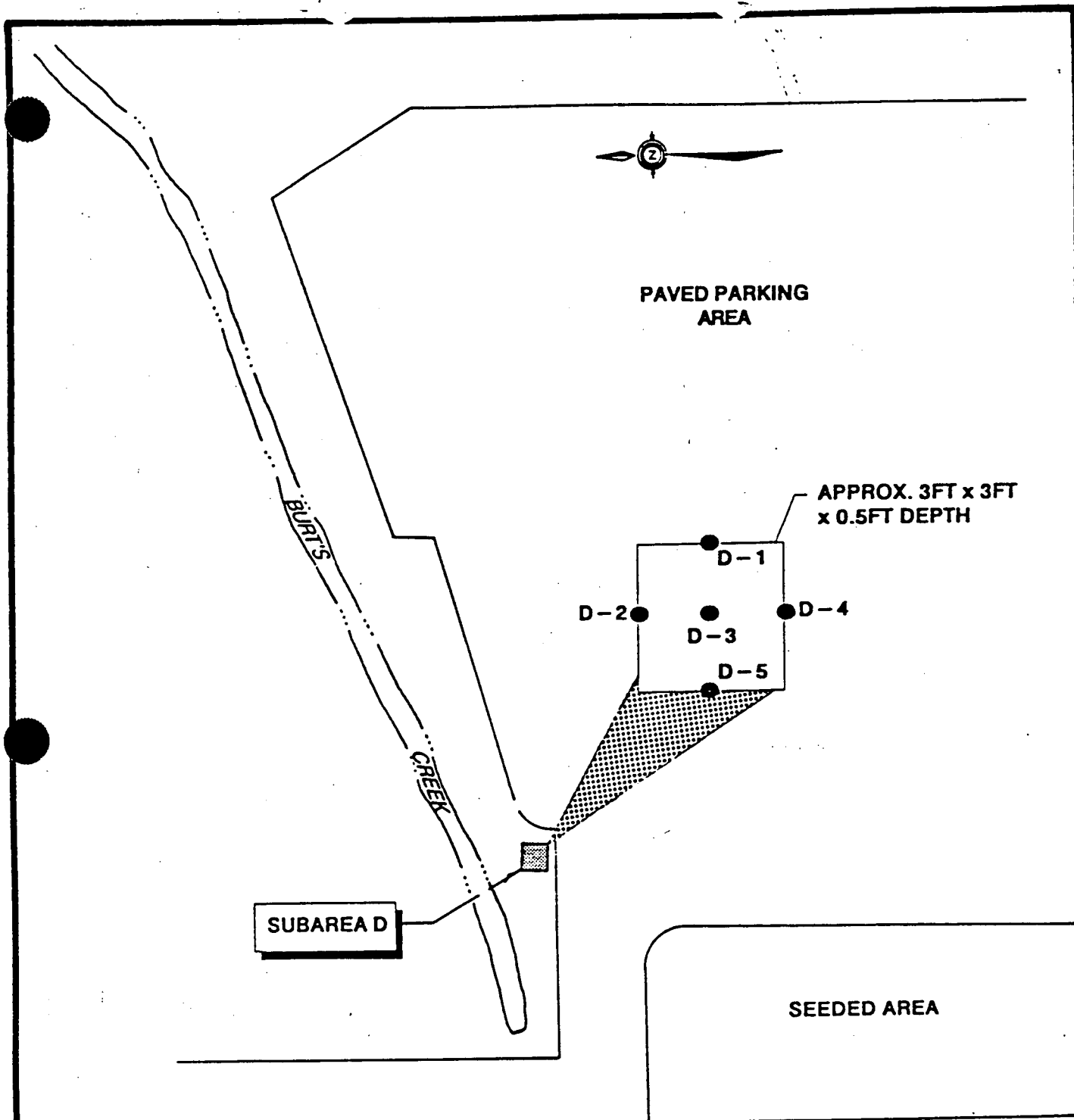
SUBAREA	EXCAVATION DEPTH (FT)
B-1	5
B-2	1
B-3	2

POST- EXCAVATION SAMPLE LOCATIONS
SUBAREAS B-1, B-2 AND B-3
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY FACILITY
ECRA CASE NO. 88904

WOODWARD - CLYDE CONSULTANTS
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
WAYNE, NEW JERSEY

DR. BY:	DRS	SCALE:	AS SHOWN	PROJ. NO.:	90X4293
CK'D BY:	DC	DATE:	28 MAR 1991	FIG. NO.:	2





SCALE

POST - EXCAVATION SAMPLE LOCATIONS SUBAREA D ESSEX SPECIALITY PRODUCTS, INC. SAYREVILLE, NEW JERSEY FACILITY ECRA CASE NO. 88904			
WOODWARD - CLYDE CONSULTANTS CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS WAYNE, NEW JERSEY			
DR. BY:	DRS	SCALE: AS SHOWN	PROJ. NO.: 90X4293
CK'D BY:	DC	DATE: 28 MAR 1991	FIG. NO.: 3

ATTACHMENT 55-18
0.441

ATTACHMENT LL



MIDDLESEX COUNTY HEALTH DEPARTMENT
HAZARDOUS MATERIALS EMERGENCY RESPONSE UNIT
DISCHARGE NOTIFICATION REPORT

ALARM TRANSMITTED
☐ GENERAL
☒ SILENT
TIME _____

INCIDENT # 933 - 90

ALARM TIME 0739

REC'D BY DIEM

DATE 06-20-90
(Mo) (Day) (Yr)

INCIDENT REPORTED BY: _____ Phone 732-4440
Name DISP
Street _____ State _____
City _____
Affiliation/Title SEPT PD
INCIDENT LOCATION: _____ Transportation _____ Facility ☒ Other _____
Name (Site): ESSON CHEMICAL Phone _____
Street INDUST ST State MT Zip Code _____
City SPRINGFIELD County MTX
Date of Incident: 06-20-90 Time: 0700
(Mo) (Day) (Yr)

IDENTITY OF SUBSTANCE(S) SPILLED, RELEASED, ETC.: ☒ Known _____ Suspected _____ Unknown _____
Name of Substance(s) [Gas, Liquid, Solid]: CLC
CAS Number: _____ UNNA Number: _____
Amount Released/Spilled _____ C-P-G _____ Actual _____ Potential _____ Estimated _____ Unknown ☒
Substance Contained ☒ Yes _____ No _____ Unknown _____
Type of Release/Spill: ☒ Terminated _____ Continuous _____ Intermittent _____ Unknown _____

NATURE OF INCIDENT: ☒ Response _____ Notification _____ Investigation _____ Other _____

INCIDENT DESCRIPTION:
☒ Fire _____ Explosion _____ Air Rel _____ ☒ Spill _____ Derailment _____ Smoke/Dust _____ L.U.S.T. _____
_____ MVA _____ Sewage _____ Pipeline _____ Drums _____ Illegal Dumping _____ Wildlife _____
_____ Equip Start-up/Shutdown, Equip Fall/Upset, etc. _____
Other (specify) _____

Injuries	Yes <input checked="" type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown	Public Exposure	Yes <input checked="" type="checkbox"/>	No <input checked="" type="checkbox"/>	Unknown
Facility Evacuation	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Unknown	Police at Scene	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Unknown
Contamination of	<input checked="" type="checkbox"/> Air	<input checked="" type="checkbox"/> Land	Unknown	Fire at Scene	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Unknown
Potable Water Source	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Unknown	EMS at Scene	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Unknown
Receiving Water				Assistance Requested	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Unknown
Location Type:	Residential <input checked="" type="checkbox"/> Industrial <input checked="" type="checkbox"/> Other _____			Sensitive Population (Hosp., School, Nur. Home)			

STATUS AT INCIDENT SCENE SMALL FIRE OIL SPILL ON FLOOR
CONTAINED

RESPONSIBLE PARTY: ☒ Known _____ Suspected _____ Unknown _____
Company Name ESSON CHEM Phone _____
Contact _____ Title _____
Street INDUST ST State _____ Zip Code _____
City SPRINGFIELD County MTX

OFFICIALS NOTIFIED (Name/Title):
NJDEP ☒ Phone 1-609-292-7172 Date/Time 10320 (T/M)
Local Health _____ Phone _____ Date/Time _____ (T/M)
Local Munc: _____ Phone _____ Date/Time _____ (T/M)
USEPA: _____ Phone 201-548-8730 Date/Time _____ (T/M)

INCIDENT REFERRED TO:
1. Name/Affil _____ Phone _____ Date/Time _____ (T/M)
2. Name/Affil _____ Phone _____ Date/Time _____ (T/M)
3. Name/Affil _____ Phone _____ Date/Time _____ (T/M)
4. Name/Affil _____ Phone _____ Date/Time _____ (T/M)

COMMENTS

90 68-06 07d2

COPIES: White - Report File

Yellow - Watchdesk

Pink - NJDEP

Goldenrod - Municipality

ATTACHMENT 4-1

Ref. No. 40.443

ATTACHMENT MM

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION II
26 Federal Plaza
New York, New York 10278

In the Matter of :

ESSEX CHEMICAL CORPORATION,
Sayreville, New Jersey, :

Docket No.: OH-II-78-19

Respondent. :

CONSENT AGREEMENT
AND ORDER

Proceeding Under the Oil Pollu-
tion Prevention Regulations
Issued Pursuant to §311(j) of :
the Clean Water Act, 33 U.S.C.
§311(j) :

PRELIMINARY STATEMENT

On October 6, 1978, the United States Environmental Protection Agency ("EPA", hereinafter referred to as "Complainant") issued a Notice of Violation pursuant to §311(j) of the Clean Water Act, 33 U.S.C. §1321(j) against ESSEX CHEMICAL CORPORATION (hereinafter, "Respondent") for its facility located at Sayreville, New Jersey. The Notice of Violation charged Respondent with specific violations of Oil Pollution Prevention Regulations promulgated at 40 C.F.R. Part 112. The conditions consented to through this Consent Agreement and Order follow Respondent's submittal to EPA of a Spill Prevention Control and Countermeasure (SPCC) Plan meeting at least the minimum requirements of 40 C.F.R. §112.7.

CONSENT AGREEMENT

Based upon the foregoing, and pursuant to §311(j) of the Act, 33 U.S.C. §1321(j), and 40 C.F.R. §114.3, it is hereby agreed that with respect to the above-referenced facility, Respondent shall comply hereinafter with all requirements of relevant regulations at 40 C.F.R. Part 112 and additionally with the following requirements:

ATTACHMENT MM-1

Ref. No. 4 D.445

(1) Not later than 30 (THIRTY) days from the date of this Consent Agreement and Order, Respondent shall submit to EPA a notarized affidavit, the form of which shall be supplied by EPA, signed by a corporate officer of Respondent of at least the rank of vice-president, stating that the SPCC Plan for the subject facility has been implemented in accordance with the requirements of said Plan. The affidavit shall be submitted to Mr. Henry Gluckstern, Attorney, Waste and Toxic Substances Branch, Office of Regional Counsel, U.S. EPA Region II, 26 Federal Plaza, Room 437, New York, New York 10278.

(2) Respondent shall pay a civil penalty in the amount of \$2,000.00 (TWO THOUSAND DOLLARS) by certified or cashier's check payable to the order of "UNITED STATES COAST GUARD." The amount of civil penalty shall represent the final assessment of the civil penalty proposed to be assessed by the Notice of Violation by which this proceeding was commenced. Such payment of civil penalty shall be remitted to the person designated in paragraph (1), supra, at the address indicated therein, and received no later than 30 (THIRTY) calendar days from the date of of this Consent Agreement and Order.

This Consent Agreement and Order is in full settlement of all claims which might have been asserted pursuant to the Notice of Violation dated October 6, 1978 and 40 C.F.R. Part 112. Respondent admits the jurisdictional allegations of the Notice of Violation and neither admits nor denies specific factual allegations set forth therein. Respondent consents to the assessment of the civil penalty set forth herein and waives any right it may have to a hearing on the Notice of Violation.

This Consent Agreement and Order and the terms of settlement embodied herein shall be deemed automatically withdrawn and no longer binding upon EPA unless it is signed and consented to by Respondent within 30 (THIRTY) calendar days of the date of this agreement, as indicated below.

Date of Agreement: MAY 11 1984

ATTACHMENT MM-2

FOR THE RESPONDENT:

Dated this _____ day of _____, 1984

By: William E. Leuchten
(signature)

William E. LEUCHTEN
(print name)

Pres.
Title:

FOR THE COMPLAINANT:

Dated this 14th day of MAY, 1984

By: Douglas R. Blazey
DOUGLAS R. BLAZEY
Regional Counsel
United States Environmental
Protection Agency
Region II

ORDER

The Regional Administrator of EPA, Region II, concurs in the provisions of the above Consent Agreement. The Consent Agreement is hereby approved and issued effective immediately.

Dated this _____ day of _____, 1984

By: Jacqueline E. Schaffer
JACQUELINE E. SCHAFER
Regional Administrator
United States Environmental
Protection Agency
Region II

ATTACHMENT MM-7

Ret No. 4 D. 447

ATTACHMENT NN



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT

John J. Trela, Ph.D., Acting Director
401 East State St.
CN 028

Trenton, N.J. 08625
609 - 633 - 1408

APR 3 1987

IN THE MATTER OF
ESSEX SPECIALTY PRODUCTS
1 CROSSMAN ROAD SOUTH
SAYREVILLE, NEW JERSEY 08872

: NOTICE OF CIVIL ADMINISTRATIVE
: PENALTY ASSESSMENT
:
:

This Notice of Civil Administrative Penalty Assessment is issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (hereinafter "NJDEP" or the "Department") by N.J.S.A. 13:1D-1 et seq. and the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., and duly delegated to the Assistant Director for Enforcement of the Division of Hazardous Waste Management pursuant to N.J.S.A. 13:1B-4.

FINDINGS

- 1) The Department has determined that Essex Specialty Products (hereinafter "Essex") is a generator of hazardous waste (EPA ID #NJDO02568715) as defined by N.J.A.C. 7:26-1.4 and is located at Blocks 251 and 336A, Lot 2, 1 Crossman Road South, Sayreville Borough, Middlesex County, State of New Jersey.
- 2) During an inspection conducted by Departmental personnel on February 4, 1987, Essex was observed to be accumulating hazardous waste in containers on site in excess of ninety (90) days. A generator who accumulates hazardous waste in excess of ninety (90) days is an operator of a hazardous waste storage facility and must comply with N.J.A.C. 7:26-9.1 et seq., and with the permit requirements of N.J.A.C. 7:26-12.1 et seq.
- 3) Based on the facts cited in paragraph 2, the Department has determined that Essex is operating a hazardous waste facility as defined in N.J.A.C. 7:26-1.4. Consequently, Essex is in violation of N.J.A.C. 7:26-12.1(a) et seq., by failing to submit Part A and Part B of a hazardous waste permit application and without having received a final and effective permit prior to operating a hazardous waste facility.

ATTACHMENT NNY

202 Nov. 4 0.449

- 4) During the February 4, 1987 inspection noted in paragraph 2 above, it was also noted that Essex failed to inspect areas where containers are stored, at least daily, looking for leaks and for deterioration caused by corrosion or other factors, in violation of N.J.A.C. 7:26-9.4(d)5.
- 5) By letter dated February 17, 1987, Essex submitted copies of manifests for shipments of hazardous waste off-site and also a copy of their daily inspection log. Upon review of the materials submitted, the Department has determined that Essex is in compliance with all above mentioned violations.
- 6) Based on the facts set forth in these FINDINGS, the Department has determined that Essex has violated the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq. and the regulations promulgated pursuant thereto, N.J.A.C. 7:26-1 et seq., specifically N.J.A.C. 7:26-9.4(d)5 and 12.1(a).

NOTICE OF CIVIL ADMINISTRATIVE PENALTY ASSESSMENT

- 7) Pursuant to N.J.S.A. 13:1E-9e and based upon the above FINDINGS, the Department has determined that a civil administrative penalty should be assessed against Essex in the amount of \$1,500.
- 8) Payment of the penalty is due when a final order is issued by the Commissioner subsequent to a hearing, if any, or when this Notice of Civil Administrative Penalty Assessment becomes a final order (see following paragraph). Payment shall be made by certified check payable to "Treasurer, State of New Jersey" and shall be submitted to:

Assistant Director for Enforcement
Division of Hazardous Waste Management
CN 028
Trenton, NJ 08625

- 9) If no request for a hearing is received within twenty (20) calendar days from receipt of this Notice of Civil Administrative Penalty Assessment, it shall become a final order upon the twenty-first calendar day following its receipt and the penalty shall be due and payable.

NOTICE OF RIGHT TO A HEARING

- 10) Pursuant to N.J.S.A. 52:14B-1 et seq. and N.J.S.A. 13:1E-9, Essex is entitled to an administrative hearing. Any hearing request shall be delivered to the address referenced in paragraph 8 within twenty (20) calendar days from receipt of this Notice of Civil Administrative Penalty Assessment.
- 11) Pursuant to N.J.S.A. 52:14B-9(b) and N.J.A.C. 1:1-6.1(b), Essex shall, in its request for a hearing, furnish NJDEP with the following:

ATTACHMENT

NN-2

Ref. No. 4 D. 450

- a. A statement of the legal authority and jurisdiction under which the hearing or action to be taken is to be held;
- b. A reference to the particular sections of the statutes and rules involved;
- c. A short and plain statement of the matters of fact and law asserted; and
- d. The provisions of this Notice of Civil Administrative Penalty Assessment to which Essex objects, the reasons for such objections, and any alternative provisions proposed.

GENERAL PROVISIONS

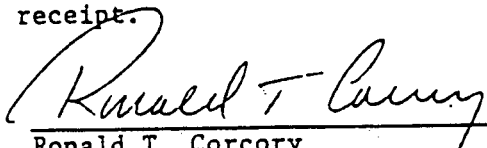
- 12) This Notice of Civil Administrative Penalty Assessment is binding on Essex, its principals, directors, officers, agents, successors, assigns, any trustee in bankruptcy or other trustee, and any receiver appointed pursuant to a proceeding in law or equity.
- 13) Notice is given that violations of any statutes, rules or permits other than those herein cited may be cause for additional enforcement actions, either administrative or judicial. By issuing this Notice of Civil Administrative Penalty Assessment the Department does not waive its rights to initiate additional enforcement actions.
- 14) No obligations imposed by this Notice of Civil Administrative Penalty Assessment (with the exception of paragraph 7, above) are intended to constitute a debt, damage claim, penalty or other civil action which should be limited or discharged in a bankruptcy proceeding. All obligations are imposed pursuant to the police powers of the State of New Jersey, intended to protect the public health, safety, welfare and environment.
- 15) Notice is given that pursuant to N.J.S.A. 13:1E-9e, the Department is authorized to assess a civil administrative penalty of not more than \$25,000.00 for each violation and additional penalties of not more than \$2,500.00 for each day during which the violation continues after receipt of an administrative order from the Department.
- 16) Notice is further given that pursuant to N.J.S.A. 13:1E-9f, any person who violates N.J.S.A. 13:1E-1 et seq. or any code, rule or regulation promulgated thereunder shall be liable to a penalty of not more than \$25,000.00 per day of such violation, and each day's continuance of the violation shall constitute a separate violation.
- 17) Notice is further given that pursuant to N.J.S.A. 13:1E-9f, any person who violates an administrative order issued pursuant to N.J.S.A. 13:1E-9c, or a court order issued pursuant to N.J.S.A. 13:1E-9d, or who fails to pay a civil administrative penalty in

ATTACHMENT NV-3

Ref. No. 4 P. 451

full after it is due shall be subject upon order of a court to a civil penalty not to exceed \$50,000.00 per day of such violation and each day's continuance of the violation shall constitute a separate violation.

- 18) Except as provided above in the Notice of a Right to a Hearing Section, this Notice of Civil Administrative Penalty Assessment shall be effective upon receipt.



Ronald T. Corcory
Acting Assistant Director - Enforcement
Division of Hazardous Waste Management

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ATTACHMENT NW-4

Ref. No. 4 p. 452

ATTACHMENT OO

Ref. No. 4 D, 453



(609)633-7141

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT

Michele M. Putnam
Deputy Director
Hazardous Waste Operations

John J. Trela, Ph.D., Director

Lance R. Miller
Deputy Director
Responsible Party Remedial Action

IN THE MATTER OF
ESSEX CHEMICAL CORPORATION, ESSEX SPECIALTY
PRODUCTS, INC., ESSEX INDUSTRIAL CHEMICALS,
INC., PIONEER PHARMACEUTICALS, INC., INOPAK,
~~A NEW JERSEY CORPORATION~~
ECRA CASE #'s 88898, 88900, 88901, 88902,
88903, 88904

: ADMINISTRATIVE
: CONSENT ORDER
:
:
:
:
:
:

The following FINDINGS are made and ORDER is issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (hereinafter "NJDEP") by N.J.S.A. 13:1D-1 et seq. and the Environmental Cleanup Responsibility Act, N.J.S.A. 13:1K-6 et seq., and duly delegated to the Assistant Director for the Industrial Site Evaluation Element within the Division of Hazardous Waste Management pursuant to N.J.S.A. 13:1B-4.

FINDINGS

1. The Environmental Cleanup Responsibility Act, N.J.S.A. 13:1K-6 et seq. ("ECRA" or "the Act"), was signed into New Jersey state law by Governor Thomas H. Kean on September 2, 1983, and took effect on December 31, 1983.
2. ECRA required the NJDEP to adopt rules and regulations to implement the Act. On December 21, 1987, NJDEP adopted the Final ECRA Regulations, N.J.A.C. 7:26B ("Regulations") in compliance with the Administrative Procedure Act; N.J.S.A. 52:14B-1 et seq., upon acceptance for filing by the Office of Administrative Law pursuant to N.J.A.C. 1:30-4.4(d). On January 1, 1988, the Regulations became effective and concurrently repealed N.J.A.C. 7:1-3, the Interim ECRA Regulations.
3. ECRA requires that the owner or operator of an industrial establishment planning to sell or close or transfer operations (a) notify the NJDEP in writing within five (5) days of the execution of the agreement of sale or public release of its decision to close pursuant to N.J.A.C. 7:26B-1.6, (b) submit within sixty (60) days prior to transfer of title or closing operations, a Negative Declaration or Cleanup Plan to the NJDEP for approval, and (c) obtain, upon approval of any necessary Cleanup Plan by the NJDEP, a surety bond or other financial security approved by the NJDEP guaranteeing performance of the Cleanup Plan in an amount equal to the cost estimate for the approved Cleanup Plan.

ATTACHMENT 00-1

Ref. No. 4 p. 454

4. N.J.S.A. 13:1K-13 provides that failure to submit a Negative Declaration or Cleanup Plan pursuant to ECRA is grounds for voiding the sale by NJDEP. Any person who knowingly gives or causes to be given any false information or who fails to comply with the provisions of ECRA is liable for a penalty of not more than \$25,000.00 for each occurrence, and each day of a violation of a continuing nature constitutes an additional and separate offense as specified in N.J.A.C. 7:26B-9.3. Furthermore, any officer or management official of an industrial establishment who knowingly directs or authorizes the violation of any provisions of the Act shall be personally liable for the \$25,000.00 penalties for each violation described above.
5. On September 13, 1988, Essex Chemical Corporation ("Ordered Party") submitted to NJDEP an application for an Administrative Consent Order ("ACO") pursuant to N.J.A.C. 7:26B-7.2. The ACO application is incorporated herein by reference and includes the following information:

A. Industrial Establishments: See Attachment A

B. Transaction:

Seller: Essex Chemical Corporation, a New Jersey Corporation

Buyers: Dow Chemical Company, a Delaware Corporation

Description:

Essex Specialty Products, Inc., Essex Industrial Chemicals, Inc., Pioneer Pharmaceuticals, Inc., and Inopak, ~~a New Jersey Corporation~~ are wholly-owned subsidiaries of Essex Chemical Corporation. On September 7, 1988, DC Acquisition Corporation, a New Jersey Corporation and a wholly-owned subsidiary of the Dow Chemical Company, commenced a tender offer for all outstanding shares of capital stock of Essex Chemical Corporation, a New Jersey Corporation. Upon the consummation of the tender offer, DC Acquisition will be merged into Essex Chemical Corporation with Essex Chemical Corporation as the surviving corporation. Essex Specialty Products, Inc., Essex Industrial Chemicals, Inc., Pioneer Pharmaceuticals, Inc., and Inopak, ~~a New Jersey Corporation~~ will continue operations at the Sayreville, Paulsboro, Irvington, Union, Newark and Sayreville Boro facilities. Essex Chemical Corporation will become a wholly-owned subsidiary of the Dow Chemical Company.

6. The Transaction described in Paragraph 5.B. above is the sale, transfer and/or closing of Industrial Establishments as defined by ECRA and the Regulations. NJDEP and the Ordered Party(ies) expressly agree that the Transaction is subject to ECRA and the Regulations. The Ordered Party(ies) has requested that NJDEP prepare an ACO which, when effective, will allow the Transaction to be consummated prior to the completion of all administrative requirements.
7. In circumstances as referenced in N.J.A.C. 7:26B-7.1(a) through 10, NJDEP, in its discretion, may enter into an ACO so that the closing, terminating or transferring of operations may occur prior to completing the ECRA obligations. The ACO specifies a time schedule for completion

ATTACHMENT 00-2

Ref. NO. 4 p. 455

of ECRA requirements by the Ordered Party(ies) and provides for financial assurance in a form and amount acceptable to NJDEP prior to consummation of any transactions subject to ECRA. Failure to fully comply with all the terms and conditions of the ACO shall subject the Ordered Party(ies) to the full range of penalties and remedies prescribed in the Act, the Regulations, specifically N.J.A.C. 7:26B-9.3 and the ACO.

ORDER

NOW, THEREFORE, IT IS ORDERED AND AGREED THAT:

8. NJDEP and the Ordered Party(ies) expressly agree that the terms and conditions of this ACO, including the financial assurance requirements, set forth in Paragraphs 9, 10, 11, and 15 below, shall apply separately to each of the Ordered Party(ies) facilities. Furthermore, NJDEP and the Ordered Party(ies) agree to administer and complete all applicable ECRA program requirements, including exercise of the financial assurance requirements and any other remedial measures pursuant to the ACO and ECRA, separately for each subject Industrial Establishment.
9. ECRA Program Requirements for the Ordered Party(ies) Facilities
 - A. The Ordered Party(ies) shall complete the Initial Notice (commonly referred to as ECRA I and ECRA II) for each subject Industrial Establishment required by N.J.A.C. 7:26B-3 within thirty (30) days from the effective date of this ACO.
 - B. Within one hundred twenty (120) days from receipt of NJDEP's written approval of the Sampling Plan(s) prepared pursuant to N.J.A.C. 7:26B-3.2(b)11 and N.J.A.C. 7:26B-4.2, the Ordered Party(ies) shall initiate, complete, and submit to NJDEP the results from any NJDEP-approved Sampling Plan(s) including, but not limited to, complete delineation of environmental contamination on-site, and any off-site environmental contamination resulting from discharges of hazardous wastes or substances on or from the Industrial Establishment. These results shall be accompanied by a proposed negative declaration, cleanup plan or revised sampling plan pursuant to 7:26B-4.3. Any negative declaration or cleanup plan submitted to NJDEP shall conform to 7:26B-5.
 - C. NJDEP and the Ordered Party(ies) recognize that additional sampling may be necessary during the various stages of the implementation of this ACO and ECRA, including during the implementation of a Cleanup Plan(s), at any of the subject Industrial Establishments to delineate fully the nature and extent of environmental contamination on-site, and any off-site environmental contamination resulting from discharges of hazardous substances or wastes on or from any of the subject Industrial Establishments. Therefore, the Ordered Party(ies) agrees to submit any additional sampling plans for NJDEP review and approval required by NJDEP in writing during the various stages of the

ATTACHMENT 00-3

Ref. No. 4 p. 456

implementation of this ACO and ECRA, including during the implementation of a Cleanup Plan(s), to further delineate the nature and extent of environmental contamination on or from any of the subject Industrial Establishments. NJDEP and the Ordered Party(ies) mutually agree that the Ordered Party(ies) shall submit to NJDEP any required additional sampling plans for review and approval within thirty (30) days of the receipt of said written request. Within ninety (90) days from receipt of NJDEP's written approval of any additional sampling plans(s), the Ordered Party(ies) shall initiate, complete and submit to NJDEP the results from any additional NJDEP-approved Sampling Plan(s) required pursuant to this paragraph accompanied by a proposed negative declaration, cleanup plan, or revised sampling plan pursuant to N.J.A.C. 7:26B-4.3.

- D. The Ordered Party(ies) shall implement any NJDEP-approved Cleanup Plan(s) in accordance with the approved time schedule or defer implementation of all or part of the Cleanup Plan(s) subject to NJDEP approval pursuant to N.J.A.C. 7:26B-5.5.
- E. Should NJDEP determine that any submittal made under Paragraph 9 of this ACO is inadequate or incomplete, then NJDEP shall provide the Ordered Party(ies) with written notification of the deficiency(ies), and the Ordered Party(ies) shall revise and resubmit the required information within a reasonable period of time not to exceed thirty (30) days from receipt of such notification.
- F. All submissions required pursuant to Paragraph 9 or any other provision of this ACO shall be accompanied by all appropriate fees required pursuant N.J.A.C. 7:26B-1.10.

10. Conditions for Financial Assurance

- A. The Ordered Party(ies) shall obtain and provide to NJDEP separate financial assurances in forms acceptable to NJDEP for each subject Industrial Establishment in the amounts specified in Attachment A. The financial assurances must conform with the requirements of N.J.S.A. 13:1K-9(b)3, N.J.A.C. 7:26B-6 and this ACO. These financial assurances shall be submitted to NJDEP along with a fully executed ACO pursuant to Paragraph 17.A of this ACO.
- B. The Ordered Party(ies) shall establish and submit to NJDEP for each subject Industrial Establishment separate standby trust funds pursuant to N.J.A.C. 7:26B-6.7 within seven (7) days from the effective date of this ACO. The financial institution(s) which issues the financial assurance(s) shall agree to promptly and directly deposit all amounts up to the total value of the financial assurance(s) into the standby trust fund(s) upon demand by NJDEP.
- C. Upon NJDEP approval of a Cleanup Plan(s) for any of the subject Industrial Establishments, the Ordered Party(ies) shall amend the amount of the financial assurance(s), specified in Attachment A

ATTACHMENT 004

Ref. No. 4 p. 457

for any or all of the Ordered Party(ies)''s facilities as the case may be, to equal the estimated cost of implementation of the approved Cleanup Plan(s), or shall provide such other financial assurance(s) as may be approved by NJDEP in an amount(s) equal to the estimated cost of implementation of the approved Cleanup Plan(s).

- D. In the event that NJDEP determines that the Ordered Party(ies) has failed to perform any of its obligations under this ACO or ECRA, at any of the Ordered Party(ies)''s facilities, NJDEP may draw on the financial assurance(s) for that subject Industrial Establishment(s); provided, however, that before any such demand is made, NJDEP shall notify the Ordered Party(ies) in writing of the obligation(s) with which it has not complied, and the Ordered Party(ies) shall have reasonable time, not to exceed fourteen (14) days, to perform such obligation(s) to NJDEP's satisfaction. Nothing in this paragraph shall prevent NJDEP from collecting stipulated penalties pursuant to the terms of this ACO for cause.
- E. Upon NJDEP's written approval of a Negative Declaration(s), the Ordered Party(ies) shall be relieved of any further obligation to maintain in full force and effect the financial assurance(s) required by this ACO for the facility(ies) which is the subject of the NJDEP-approved Negative Declaration(s). Upon NJDEP's written approval of the completion of any cleanup(s) required by this ACO, as verified by final site inspection(s) pursuant to N.J.A.C. 7:26B-5.7, and upon the Ordered Party(ies)''s satisfaction of all financial obligations in connection therewith, the Ordered Party(ies) shall be relieved of any further obligation to maintain in full force and effect the financial assurance(s) required by this ACO for the facility(ies) at which the approved cleanup(s) has been completed.

11. Additional Conditions of Consent

- A. The Ordered Party(ies) shall allow NJDEP access to each subject Industrial Establishment(s) pursuant to N.J.A.C. 7:26B-1.12 for the purpose of undertaking all necessary monitoring and environmental cleanup activities. The Ordered Party(ies) has provided NJDEP with appropriate documentation that the Buyer shall allow the NJDEP access required herein.
- B. Compliance with the terms of this ACO shall not excuse the Ordered Party(ies) from obtaining and complying with any applicable federal, state or local permits, statutes, regulations and/or orders while carrying out the obligations imposed by ECRA through this ACO. The execution of this ACO shall not excuse the Ordered Party(ies) from compliance with all other applicable environmental permits, statutes, regulations and/or orders and shall not preclude NJDEP from requiring that the Ordered Party(ies) obtain and comply with any permits, and/or orders issued by NJDEP under the authority of the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., and the Spill Compensation and

ATTACHMENT 00-5
Ref. No. 4 p. 458

Control Act ("Spill Act") N.J.S.A. 58:10-23.11 et seq., for the matters covered herein. The terms and conditions of any such permit shall not be preempted by the terms and conditions of this ACO if the terms and conditions of any such permit are more stringent than the terms and conditions of this ACO. Should any of the measures to be taken by the Ordered Party(ies) during the remediation of any ground water and surface water pollution result in a new or modified discharge as defined in the New Jersey Pollutant Discharge Elimination System ("NJPDES") regulations, N.J.A.C. 7:14A-1 et seq., then the Ordered Party(ies) shall obtain a NJPDES permit or permit modification from NJDEP prior to commencement of said activity.

- C. NJDEP reserves the right to stop any construction, improvement(s), or change(s) at the Industrial Establishment(s) subject to this ACO, due to the presence of hazardous substances or wastes, the disturbance of which, prior to implementation of NJDEP-approved Cleanup Plan, has the potential to cause harm to public health, safety and welfare as determined by the NJDEP.
- D. NJDEP agrees that it will not bring any action, nor will it recommend that the Attorney General's Office bring any action, including monetary penalties, for the Ordered Party's(ies') failure to comply with (a) the time requirements in N.J.S.A. 13:1K-9(b)1 that NJDEP be notified within five (5) days of execution of an agreement of sale or public release of its decision to close, and (b) the time requirement in N.J.S.A. 13:1K-9(b)2 that a Negative Declaration or Cleanup Plan be submitted sixty (60) days prior to transfer of title or closing operations for the transaction described in paragraph 5.B above.
- E. No obligations imposed by this ACO (other than by Paragraph 11.G below) are intended to constitute a debt, claim, penalty or other civil action which could be limited or discharged in a bankruptcy proceeding. All obligations imposed by this ACO shall constitute continuing regulatory obligations imposed pursuant to the police power of the State of New Jersey, intended to protect the public health, safety and welfare.
- F. This ACO imposes certain requirements and deadlines upon the Ordered Party(ies). The Ordered Party(ies) agrees to use its best efforts to comply with said requirements and NJDEP agrees not to act unreasonably in the enforcement and implementation of this ACO.
- G. In the event that the Ordered Party(ies) fails to comply with any of the provisions of this ACO, the Ordered Party(ies) shall pay to NJDEP stipulated penalties in the amount not less than \$1,000.00 nor more than \$5,000.00 as specified in N.J.A.C. 7:26B-7.4(a) for each of the subject Industrial Establishments for each day on which the Ordered Party(ies) fails to comply with any obligation under this ACO. No such stipulated penalty shall be payable by the Ordered Party(ies) with respect to such period that said failure to comply results from Force Majeure. The Ordered Party(ies) waives its rights to contest NJDEP's exercise

ATTACHMENT 00-6

Ref. No. 4 p. 459

of discretion concerning the amount of any penalty assessed by NJDEP pursuant to N.J.A.C. 7:26B-9.3 and N.J.A.C. 7:26B-7.4(b).

- H. The provisions of this ACO shall be binding upon the Ordered Party(ies) and its successors in interest, assigns, tenants, and any trustee in bankruptcy or receiver appointed pursuant to a proceeding in law or equity. Any officer or management official of the Ordered Party(ies) who knowingly directs or authorizes the violation of any provision of ECRA or the Regulations shall be personally liable for the penalty established pursuant to N.J.S.A. 13:1K-13 and N.J.A.C. 7:26B-9.3.
- I. Any signatory to this ACO, who is executing this ACO on behalf of an entity other than that individual, shall provide to NJDEP appropriate documentary evidence as specified in N.J.A.C. 7:26B-7.5 authorizing the signatory to bind the entity to the provisions of this ACO. This documentary evidence shall be submitted to NJDEP along with a fully executed ACO pursuant to Paragraph 17.A of this ACO.
- J. NJDEP and the Ordered Party(ies) expressly agree that NJDEP will not exercise its right to void the transfer of any or all of the subject Industrial Establishments, as the case may be, included in the Transaction described in Paragraph 5.B above, except in the event that the Ordered Party(ies) fails to submit an approvable Negative Declaration(s) or Cleanup Plan(s) for that facility(ies) pursuant to Paragraph 9.D above. NJDEP's right to void the subject sale or transfer shall terminate upon NJDEP's written approval of an appropriate Negative Declaration(s) or Cleanup Plan(s) for any or all of the subject Industrial Establishments, as the case may be, submitted by the Ordered Party(ies) pursuant to this ACO and ECRA.
- K. Any Ordered Party to this ACO shall provide to NJDEP at least thirty (30) days prior written notice of the dissolution of its corporate identity or liquidation of its assets, and shall provide immediate written notice to NJDEP of filing of a petition for bankruptcy no later than the day after filing. Upon receipt of notice of dissolution of corporate identity, liquidation of assets or filing of a petition for bankruptcy, NJDEP may request and within fourteen (14) days of NJDEP's written request the Ordered Party(ies) shall obtain and submit to NJDEP, additional financial assurance pursuant to this ACO.
- L. Any submission to be made to NJDEP in accordance with this ACO shall be directed to:

Joseph R. Fallon, Assistant Director
Industrial Site Evaluation Element
Division of Hazardous Waste Management
CN 028 Trenton, NJ 08625

ATTACHMENT 00-7

Ref. No. 4 p. 460

12. Force Majeure

If any fire, flood, storm, riot, strike, or other circumstance determined by NJDEP to be beyond the control of the Ordered Party(ies) occurs which causes or may cause delays in the achievement of any deadline contained in this ACO, the Ordered Party(ies) shall notify NJDEP in writing within ten (10) days of the delay or anticipated delay, as appropriate, referencing this Paragraph and describing the anticipated length, precise cause or causes, measures taken or to be taken and the time required to minimize the delay. The Ordered Party(ies) shall adopt all necessary measures to prevent or minimize any delay. If any delay or anticipated delay has been or will be caused by fire, flood, storm, riot, strike or other circumstances determined by NJDEP to be beyond the control of the Ordered Party(ies), then the time for performance hereunder shall be extended by NJDEP for a period no longer than the delay resulting from such circumstances, provided that NJDEP may grant additional extensions for good cause. If the events causing such delay are not found by NJDEP to be beyond the control of the Ordered Party(ies), failure to comply with the provisions of the ACO shall constitute a breach of the ACO's requirements. The burden of proving that any delay is caused by circumstances beyond the Ordered Party(ies)'s control and the length of such delay attributable to those circumstances shall rest with the Ordered Party(ies). Increases in the costs or expenses incurred in fulfilling the requirements contained herein shall not be a basis for an extension of time. Similarly, delay in completing an interim requirement shall not automatically justify or excuse delay in the attainment of subsequent requirements.

13. Reservation of Rights

This ACO shall be fully enforceable in the New Jersey Superior Court having jurisdiction over the subject matter and signatory parties upon the filing of a summary action for compliance pursuant to ECRA. This ACO may be enforced in the same manner as an Administrative Order issued by NJDEP pursuant to other statutory authority and shall not preclude NJDEP from taking whatever action it deems appropriate to enforce the environmental protection laws of the State of New Jersey. It is expressly recognized by NJDEP and the Ordered Party(ies) that nothing in this ACO shall be construed as a waiver by NJDEP of its rights with respect to enforcement of ECRA on bases other than those set forth in the ECRA Program Requirements section of this ACO or by the Ordered Party(ies) of its right to seek review of any enforcement action as provided by the Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq. Furthermore, nothing in this ACO shall constitute a waiver of any statutory right of NJDEP to require the Ordered Party(ies) to implement additional remedial measures should NJDEP determine that such measures are necessary to protect the public health, safety and welfare.

14. The Ordered Party(ies) agrees not to contest the authority or jurisdiction of the Department to issue the ACO and also agrees not to contest the terms of this ACO.

ATTACHMENT 00-8

Ret. No. 4 p. 461

15. The execution of this ACO shall not release Essex Chemical Corporation, Bernard and Zelda Levine, the City of Newark Olympic Industrial Park and Independence Realty from any responsibilities Essex Chemical Corporation, Bernard and Zelda Levine, the City of Newark Olympic Industrial Park and Independence Realty has pursuant to ECRA and the Regulations. NJDEP may exercise its discretion as to enforcement of the ACO and enforcement of the statutory obligation of Essex Chemical Corporation, Bernard and Zelda Levine, the City of Newark Olympic Industrial Park and Independence Realty under ECRA and the Regulations.

16. Responsibility of the Ordered Parties

- A. The Ordered Parties have informed NJDEP that Essex Chemical Corporation shall be the lead party for contact with NJDEP and for compliance with the terms and conditions of this ACO. NJDEP and the Ordered Parties have agreed that the Ordered Parties shall be responsible, each of them jointly, severally and individually, for performance of all obligations listed in this ACO.
- B. NJDEP and the Ordered Parties mutually agree that in the event that Essex Chemical Corporation or Essex Specialty Products, Inc. fails or refuses to perform any ECRA obligations at the Sayreville facility and the Sayreville Boro facility, as determined by NJDEP, NJDEP may exercise full discretion concerning the ECRA obligations of the Ordered Parties for ECRA compliance. The Ordered Parties expressly agree that in the event that Essex Chemical Corporation or Essex Specialty Products, Inc. fails or refuses to perform any obligation(s) at the Sayreville facility and the Sayreville Boro facility under this ACO as determined by NJDEP, NJDEP shall have the right to exercise any option or combination of options available to NJDEP under this ACO, ECRA, the Regulations or any other statute to ensure full and complete ECRA compliance by Essex Chemical Corporation and/or Essex Specialty Products, Inc.
- C. NJDEP and the Ordered Parties mutually agree that in the event that Essex Chemical Corporation or Essex Industrial Chemicals, Inc. fails or refuses to perform any ECRA obligations at the Paulsboro facility and the Newark facility, as determined by NJDEP, NJDEP may exercise full discretion concerning the ECRA obligations of the Ordered Parties for ECRA compliance. The Ordered Parties expressly agree that in the event that Essex Chemical Corporation or Essex Industrial Chemicals, Inc. fails or refuses to perform any obligation(s) at the Paulsboro facility and the Newark facility under this ACO as determined by NJDEP, NJDEP shall have the right to exercise any option or combination of options available to NJDEP under this ACO, ECRA, the Regulations or any other statute to ensure full and complete ECRA compliance by Essex Chemical Corporation and/or Essex Industrial Chemicals, Inc.
- D. NJDEP and the Ordered Parties mutually agree that in the event that Essex Chemical Corporation or Pioneer Pharmaceuticals, Inc.

ATTACHMENT 00-9

Ref. No. 4 P. 462

fails or refuses to perform any ECRA obligations at the Irvington facility, as determined by NJDEP, NJDEP may exercise full discretion concerning the ECRA obligations of the Ordered Parties for ECRA compliance. The Ordered Parties expressly agree that in the event that Essex Chemical Corporation or Pioneer Pharmaceuticals, Inc. fails or refuses to perform any obligation(s) at the Irvington facility under this ACO as determined by NJDEP, NJDEP shall have the right to exercise any option or combination of options available to NJDEP under this ACO, ECRA, the Regulations or any other statute to ensure full and complete ECRA compliance by Essex Chemical Corporation and/or Pioneer Pharmaceuticals, Inc.

- E. NJDEP and the Ordered Parties mutually agree that in the event that Essex Chemical Corporation or Inopak fails or refuses to perform any ECRA obligations at the Union facility, as determined by NJDEP, NJDEP may exercise full discretion concerning the ECRA obligations of the Ordered Parties for ECRA compliance. The Ordered Parties expressly agree that in the event that Essex Chemical Corporation or Inopak fails or refuses to perform any obligation(s) at the Union facility under this ACO as determined by NJDEP, NJDEP shall have the right to exercise any option or combination of options available to NJDEP under this ACO, ECRA, the Regulations or any other statute to ensure full and complete ECRA compliance by Essex Chemical Corporation and/or Inopak.
17. NJDEP and Essex Chemical Corporation expressly agree that NJDEP shall allow Essex Chemical Corporation to complete the Merger within forty five (45) days of the effective date of this ACO, without requiring Essex Chemical Corporation to amend this ACO to include the Merger. In the event that Essex Chemical Corporation does not complete the Merger within this time period, Essex Chemical Corporation shall enter into an amendment to this ACO prior to Essex Chemical Corporation's completion of the Merger.
18. A. This ACO shall be effective upon the execution of this ACO by the NJDEP and the Ordered Party(ies). The Ordered Party(ies) shall return a fully executed ACO to NJDEP together with the financial assurance and signature authorization required within one (1) business day from the effective date.
- B. This ACO shall be null and void unless executed by the Ordered Party(ies) within 30 days of NJDEP signing.

ATTACHMENT 00-10

Ref. No. 4 0.463¹²

- C. Upon the effective date of this ACO, the Ordered Party(ies) may complete the Transaction described in Paragraph 5.B above subject to the conditions of this ACO.

NEW JERSEY DEPARTMENT OF
ENVIRONMENTAL PROTECTION

Date: 10-3-88

By: [Signature]
JOSEPH R. FALLON, ASSISTANT DIRECTOR
INDUSTRIAL SITE EVALUATION ELEMENT

ESSEX CHEMICAL CORPORATION
(Ordered Party)

Date: Oct. 20, 1988

By: [Signature]
Name: IRWIN S. ZONIS
Title: SENIOR VICE PRESIDENT

ESSEX SPECIALTY PRODUCTS, INC.
(Ordered Party)

Date: Oct. 20, 1988

By: [Signature]
Name: WILLIAM E. LEUCHTEN
Title: PRESIDENT

ESSEX INDUSTRIAL CHEMICALS, INC.
(Ordered Party)

Date: Oct. 20, 1988

By: [Signature]
Name: IRWIN S. ZONIS
Title: PRESIDENT

PIONEER PHARMACEUTICALS, INC.
(Ordered Party)

Date: Oct. 20, 1988

By: [Signature]
Name: LAWRENCE E. ZIER
Title: VICE PRESIDENT-ADMIN.

INOPAK
(Ordered Party)

Date: Oct. 20, 1988

By: [Signature]
Name: IRWIN S. ZONIS
Title: SENIOR VICE PRESIDENT

ATTACHMENT 00-11
Ref. No. 40.464

ATTACHMENT PP



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT

CN 028
Trenton, N.J. 08625-0028
(609) 633-7141
Fax # (609) 633-1454

IN THE MATTER OF
ESSEX CHEMICAL CORPORATION AND
ESSEX SPECIALTY PRODUCTS, INC.

: AMENDMENT TO
: ADMINISTRATIVE
: CONSENT ORDER

ECRA CASE #'s 88904 & 90472 *LC*

The following FINDINGS are made and ORDER is issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (hereinafter "NJDEP") by N.J.S.A. 13:1D-1 et seq. and the Environmental Cleanup Responsibility Act, N.J.S.A. 13:1K-6 et seq. ("ECRA"), and duly delegated to the Assistant Director for the Industrial Site Evaluation Element within the Division of Hazardous Waste Management pursuant to N.J.S.A. 13:1B-4.

FINDINGS

1. Essex Chemical Corporation ("Ordered Party") and Essex Specialty Products, Inc. ("Ordered Party") entered into an Administrative Consent Order ("ACO") with NJDEP effective October 20, 1988, (the "Essex ACO"), ECRA Case #'s 88898, 88900, 88901, 88902, 88903 & 88904 to allow Essex Chemical Corporation to complete a stock tender offer and merger prior to completion of the standard ECRA administrative process. Essex Specialty Products, Inc. continued operations at the Sayreville Boro facility, ECRA Case #88904.
2. The purpose of this ACO Amendment is to reflect that Essex Chemical Corporation has agreed to transfer the real property at the Sayreville Boro facility to Essex Specialty Products, Inc. (the "ESP sale"). Operations will continue at the Sayreville Boro facility.
3. Essex Chemical Corporation has requested that NJDEP prepare an Amendment to the Essex ACO to include the ESP sale and to allow the ESP sale to be consummated prior to completion of the standard ECRA administrative process in accordance with the Essex ACO.

ATTACHMENT *PP-1*



Ref. No. 4 p.466

ORDER

NOW, THEREFORE, IT IS ORDERED AND AGREED THAT:

4. The provisions of this Amendment shall become part of the Essex ACO. The Essex ACO as amended, shall remain in full force and effect. The ESP sale may be consummated prior to the completion of the standard ECRA administrative process.
5. On May 23, 1990, Essex Chemical Corporation submitted to NJDEP an application for an Amendment to the Essex ACO. Paragraph 5 of the Essex ACO shall be amended to read as follows:

A. Industrial Establishment

ECRA Case #90472 SIC #: 2891

Facility Name: Essex Specialty Products, Inc.
 "Sayreville Boro facility"

Facility Location: 1 Crossman Road South
 Sayreville Borough, Middlesex County

Block: 251 Lot: 2

Initial Notice Status: Incomplete

B. Transaction

Seller: Essex Chemical Corporation, a New Jersey Corporation
Buyer: Essex Specialty Products, Inc., a New Jersey Corporation

Description: Essex Chemical Corporation has agreed to transfer the real property at the Sayreville Boro facility to Essex Specialty Products, Inc. Operations will continue at the Sayreville Boro facility.

6. The Ordered Parties shall complete the Initial Notice (commonly referred to as ECRA I and II) for ECRA Case #90472 required by N.J.A.C. 7:26B-3 within thirty (30) days from the effective date of this ACO.
7. Within seven (7) days from the effective date of this Amendment, the Ordered Parties shall provide to NJDEP a copy of the written agreement between Essex Chemical Corporation and Essex Specialty Products, Inc.
8. The Ordered Parties agree not to contest the authority or jurisdiction of the Department to issue this Amendment to the Essex ACO and also agrees not to contest the terms of this Amendment.

ATTACHMENT PP-2

Ref. No. 4 p. 467 ^{JK}

9. Any signatory to this Amendment to the Essex ACO, who is executing this Amendment to the Essex ACO on behalf of an entity other than that individual, shall provide to NJDEP appropriate documentary evidence as specified in N.J.A.C. 7:26B-1.13 authorizing the signatory to bind the entity to the provisions of this Amendment to the Essex ACO. This documentary evidence shall be submitted to NJDEP along with this executed Amendment to the Essex ACO.
10. Any Ordered Party to this Amendment to the Essex ACO shall provide to NJDEP at least thirty (30) days prior written notice of the dissolution of its corporate identity or liquidation of its assets, and shall provide immediate written notice to NJDEP of filing of a petition for bankruptcy no later than the day after filing. Upon receipt of notice of dissolution of corporate identity, liquidation of assets or filing of a petition for bankruptcy, NJDEP may request and within fourteen (14) days of NJDEP's written request, an Ordered Party shall obtain and submit to NJDEP, additional financial assurance pursuant to this ACO.
11. Responsibility of the Ordered Parties
- A. The Ordered Parties have informed NJDEP that Essex Chemical Corporation shall be the lead party for contact with NJDEP and for compliance with the terms and conditions of the Essex ACO, as amended. NJDEP and the Ordered Parties have agreed that the Ordered Parties shall be responsible, each of them jointly, severally and individually, for performance of all obligations listed in such ACO.
- B. NJDEP and the Ordered Parties mutually agree that in the event that Essex Chemical Corporation or Essex Specialty Products, Inc. fails or refuses to perform any ECRA obligations, as determined by NJDEP, NJDEP may exercise full discretion concerning the ECRA obligations of the Ordered Parties for ECRA compliance. The Ordered Parties expressly agree that in the event that Essex Chemical Corporation or Essex Specialty Products, Inc. fails or refuses to perform any obligation(s) under the ACO as determined by NJDEP, NJDEP shall have the right to exercise any option or combination of options available to NJDEP under the ACO, ECRA, the Regulations or any other statute to ensure full and complete ECRA compliance by Essex Chemical Corporation and/or Essex Specialty Products, Inc.

12. This Amendment shall take effect upon the execution of this Amendment by the parties. This Amendment shall be null and void unless the Ordered Parties submit this signed Amendment to NJDEP within thirty (30) days of signing of this Amendment by NJDEP. Upon the effective date of this Amendment, the Ordered Parties may complete the Essex sale. The Ordered Parties shall submit a fully executed Amendment to NJDEP within five (5) business days from the effective date.

NEW JERSEY DEPARTMENT OF
ENVIRONMENTAL PROTECTION

Date: 6/18/90

By: 

KARL J. DELANEY, ASSISTANT DIRECTOR
INDUSTRIAL SITE EVALUATION ELEMENT

ESSEX CHEMICAL CORPORATION
("ORDERED PARTY")

Date: 6/27/90

By: 

MT Name: William S. Stavropoulos

Title: Chairman

ESSEX SPECIALTY PRODUCTS, INC.
("ORDERED PARTY")


Date: 6/29/90

By: 

MT Name: William E. Leuchten

Title: President and C.E.O.

ATTACHMENT PP-4

Ref. No. 4 p. 469 

ATTACHMENT QQ

Ref. No. 4 p. 470

*
* ESSEX SPECIALITY PRODUCTS, INC. *
*
* R&D LABORATORIES, ANALYTICAL *
*

To: R. Hoffman

Date: 12/1/87

From: C. Hotalen

REPORT NO.: 87-125

SUBJECT: Analysis of Underground Well Water

Distribution:

J. Lowry
S. Rizk
Analytical File

Approved by:

H. Prasad
H. Prasad

ATTACHMENT QA-1

Ref. No. 4 p. 471

Objective: Determine the amount of toluene, xylenes and phthalates in water samples taken from 5 underground sampling wells at the Sayreville plant.

Background: Periodically, water samples from the underground wells are submitted for possible contamination due to Xylene, toluene, and/or Bis-2-ethyl hexyl phthalate.

Results:

<u>Sample Identification</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Bis-2-ethyl hexyl phthalate</u>
Well #CW106D	ND	ND	ND
Well #02107S	ND	ND	ND
Well #4D	ND	ND	ND
Upstream	ND	ND	ND
Downstream	ND	ND	ND

Detection limit = 10 ppb

ND = amount was below the detection limit

Experimental: The samples were filtered through a 0.45 μ m cellulose acetate filter. Twenty milliliters were then analyzed using the Tekmar Dynamic Headspace Concentrator in conjunction with a HP gas chromatograph.

GC conditions were as follows:

Column: 6' 1/8" S.S. 10% OV 101

Temp. 1 = 80°

Time 1 = 4.0 min.

Rate = 15°C./min.

Temp. 2 = 280°C.

Time 2 = 20 min.

Results were based on toluene, xylene and bis-2-ethyl hexyl phthalate standards.

Analysis was by H. Prasad and C. Hotalen.

C. Hotalen

C. Hotalen

CH/rk
CHC87012

ATTACHMENT QQ-2

Ref. No. 4 p. 472

Xylenes

Well	Date of Sample			
	12/13/85	9/24/84	1/12/84	7/14/83
1S	ND	1.5	<3	ND
1D	ND	<1	<3	ND
2S	ND	<1	<3	ND
3S	-	-	-	ND
3D	-	-	-	ND
4S	ND	<1	<3	1.3
4D	-	-	-	ND
106S	ND	<1	<3	ND
106D	ND	<1	3	ND
107S	80	440	115	450
111S	ND	<1	<3	ND
111D	-	-	-	ND
Stream (upstream)	ND	-	-	-
Stream (downstream)	19	-	-	-
Stream	-	1.7	3	-

All results are expressed as parts per billion (ppb).

ND = None detected

ATTACHMENT 2.0-

Ref. No. 4 p.473

Toluene

Well	Date of Sample			
	12/13/85	9/24/84	1/12/84	7/14/83
1S	ND	2.2	<1	T
1D	ND	1.3	0.9	T
2S	ND	1.1	1	T
3S	-	-	-	ND
3D	-	-	-	T
4S	ND	<1	<1	T
4D	-	-	-	ND
106S	ND	1.5	<1	ND
106D	ND	4.3	<1	4.6
107S	ND	1460	990	9,300
111S	ND	1.5	<1	T
111D	-	-	-	1.3
Stream (upstream)	ND	-	-	-
Stream (downstream)	ND	-	-	-
Stream	-	1.1	2.4	-

All results are expressed as parts per billion (ppb).

T = Trace detected, <1 ppb

ND = None detected

ATTACHMENT 22-4

Ref. No. 4 p. 474

Bis-2-ethylhexyl Phthalate

Well	Date of Sample			
	12/13/85	9/24/84	1/12/84	7/14/83
1S	ND	93	44	80
1D	ND	260	26	27
2S	ND	220	<8	61
3S	-	-	-	25
3D	-	-	-	28
4S	ND	25	15	64
(4D)	-	-	-	55
106S	ND	72	82	44
(106D)	ND	33	19	75
(107S)	ND	23	260	140
111S	ND	87	8	33
111D	-	-	-	77
(Stream (upstream))	400	-	-	-
(Stream (downstream))	150	-	-	-
Stream	-	240	260	-

All results are expressed as parts per billion (ppb).

ND = None detected

ATTACHMENT QQ-5

Ref. No. 4 p. 475

MEMORANDUM

To: W. Corydon
R. Hoffman

Date: February 24, 1986

Subject: Results of 12/13/85 Groundwater Sampling - Sayreville

Attached are the results of the most recent round of groundwater sampling at the Sayreville plant. The only contamination detected was as follows:

80 ppb xylenes in well 107
400 ppb bis-2-ethylhexyl phthalate in the upstream sample
150 ppb bis-2-ethylhexyl phthalate in the downstream sample

For your information, I have included a summary of the results of the last few rounds of testing for comparison purposes. If none of you have any objection, I will send a copy of the most recent round of sampling results to the New Jersey Department of Environmental Protection.

D. L. Driscoll

D. L. Driscoll

DLD:dm

Attachment

cc: C. Benning
D. Drakeman
W. Leuchten
J. Prendergast, Jr.
I. Zonis

ATTACHMENT 22-1

Ref. No. 4 p. 476

Bis-2-ethylhexyl Phthalate

Well	Date of Sample			
	12/13/85	9/24/84	1/12/84	7/14/83
1S	ND	93	44	80
1D	ND	260	26	27
2S	ND	220	<8	61
3S	-	-	-	25
3D	-	-	-	28
4S	ND	25	15	64
4D	-	-	-	55
106S	ND	72	82	44
106D	ND	33	19	75
107S	ND	23	260	140
111S	ND	87	8	33
111D	-	-	-	77
Stream (upstream)	400	-	-	-
Stream (downstream)	150	-	-	-
Stream	-	240	260	-

All results are expressed as parts per billion (ppb).

ND = None detected

ATTACHMENT QA-7

Ref. No. 4 p. 477

Toluene

Well	Date of Sample			
	12/13/85	9/24/84	1/12/84	7/14/83
1S	ND	2.2	<1	T
1D	ND	1.3	0.9	T
2S	ND	1.1	1	T
3S	-	-	-	ND
3D	-	-	-	T
4S	ND	<1	<1	T
4D	-	-	-	ND
106S	ND	1.5	<1	ND
106D	ND	4.3	<1	4.6
107S	ND	1460	990	9,300
111S	ND	1.5	<1	T
111D	-	-	-	1.3
Stream (upstream)	ND	-	-	-
Stream (downstream)	ND	-	-	-
Stream	-	1.1	2.4	-

All results are expressed as parts per billion (ppb).

T = Trace detected, <1 ppb

ND = None detected

ATTACHMENT 22-8

Ref. No. 4 p. 478



PRINCETON AQUA SCIENCE

165 Fieldcrest Avenue • CN 7809 • Edison, New Jersey 08818-7809 • Telephone (201) 225-2000

February 14, 1986

Diane Driscoll
Essex Chemical Corporation
1401 Broad Street
Clifton, New Jersey 07015

RE: Report of Analysis; Essex Chemical, Sayreville,
New Jersey

Dear Ms. Driscoll:

Attached are the results of analyses of samples from eight on site monitoring wells and two stream samples at the referenced facility. The only contamination detected in a monitor well sample was 80 ppb xylenes in MW-107 (#49529). Both stream samples contained Bis (2-Ethylhexyl) phthalate, 400 pbb in the upstream sample (#49532) and 150 pbb in the downstream sample (#49533). The downstream sample also contained 19 pbb xylenes. One of the sampling crew stated that a faint sheen was seen on the stream surface when the samples were collected.

If you have any questions concerning these analyses do not hesitate to call.

Very truly yours,

PRINCETON AQUA SCIENCE

Richard W. Chapin, P.E.
Vice President
Waste Management Division

RWC:dr
#8525-039
Enclosure

ATTACHMENT 02-9



PRINCETON AQUA SCIENCE

165 Fieldcrest Avenue • CN 7809 • Edison, New Jersey 08818-7809 • Telephone (201) 225-2000

Company	Essex Chemical Corporation	Job #:	8525
		Date:	1/31/86
Address	1401 Broad Street	Auth.:	
		Lot #:	9088
City	Clifton	State	NJ
		Zip	07015
To Attn. of:	D. Driscoll	Invoice #:	
		Sample Date:	12/13/85
		N.J. Lab Certification	
		ID#	12064

REPORT OF ANALYSIS

PAS #	Sample Identification	Bis(2-Ethylhexyl)phthalate (ppb)	Toluene (ppb)	Xylenes (ppb)
49524	MW-1S	ND (<20)	ND (<5)	ND (<10)
49525	MW-1D	ND (<20)	ND (<5)	ND (<10)
49526	MW-2S	ND (<20)	ND (<5)	ND (<10)
49527	MW-4S	ND (<20)	ND (<5)	ND (<10)
49528	MW-111S	ND (<20)	ND (<5)	ND (<10)
49529	MW-107	ND (<20)	ND (<5)	80
49530	MW-106S	ND (<20)	ND (<5)	ND (<10)
49531	MW-106D	ND (<20)	ND (<5)	ND (<10)
49532	Stream (Upstream)	400	ND (<5)	ND (<10)
49533	Stream (Downstream)	150	ND (<5)	19

ATTACHMENT 20-10

ATTACHMENT RR

Ref. No. 4 p. 481

ATTACHMENT 8

**SEPTEMBER 1988 MONITORING WELL SAMPLING AND
ANALYTICAL RESULTS FOR THE SAYREVILLE FACILITY
IT CORPORATION PROJECT NO. 529042**

ATTACHMENT B.R.1

Ref. No. 4 p. 482

SEPTEMBER 1988
MONITOR WELL SAMPLING AND ANALYTICAL RESULTS
FOR THE SAYERVILLE FACILITY

PREPARED FOR:

ESSEX CHEMICAL CORPORATION
1401 BROAD STREET
CLIFTON, NEW JERSEY 07015

PREPARED BY:

IT CORPORATION
165 FIELDCREST AVENUE
EDISON, NEW JERSEY 08818

IT PROJECT NO. 529042

NOVEMBER 1988

ATTACHMENT BR-2

Ref. No. 4 p. 483

TABLE OF CONTENTS

	<u>PAGE</u>
1.0 INTRODUCTION	1-1
2.0 ENVIRONMENTAL SETTING	2-1
2.1 SITE LOCATION	2-1
2.2 SITE GEOLOGY	2-1
2.3 SITE HYDROGEOLOGY	2-2
3.0 HISTORICAL ENVIRONMENTAL ACTIVITIES	3-1
3.1 PREVIOUS SAMPLING ACTIVITIES	3-1
3.2 RECENT SAMPLING ACTIVITIES	3-2
4.0 ANALYTICAL RESULTS	4-1
5.0 CONCLUSIONS	5-1

LIST OF TABLES

<u>TABLE NO.</u>	<u>TITLE</u>
1	MONITOR WELL WATER LEVEL ELEVATIONS
2	ANALYTIC SUMMARY OF SEPTEMBER 13 AND 21, 1988 SAMPLING
3	SUMMARY OF CHEMICAL ANALYSES - TOLUENE
4	SUMMARY OF CHEMICAL ANALYSES - XYLENES
5	SUMMARY OF CHEMICAL ANALYSES - BIS(2-ETHYLHEXYL)PHTHALATE
6	NEW JERSEY ECRA ACTION LEVELS FOR GROUND WATER
7	NEW JERSEY ECRA ACTION LEVELS FOR INDIVIDUAL COMPOUNDS IN GROUND WATER

ATTACHMENT RR-3

Ref. No. 4 p. 484

TABLE OF CONTENTS

- Continued -

LIST OF FIGURES

FIGURE NO.

TITLE

1

SITE LOCATION MAP

2

GROUND WATER CONTOUR MAP

LIST OF APPENDICES

APPENDIX NO.

TITLE

A

SAMPLE ANALYTICAL RESULTS AND LABORATORY QA/QC REPORT

ATTACHMENT RR-4

Ref. No. 4 p. 485

1.0 INTRODUCTION

The following report has been prepared for the Essex Chemical Corporation and focuses on the ground water conditions at their facility in Sayerville, New Jersey. The purpose of this report is to partially satisfy those reporting requirements as outlined in the Environmental Cleanup Responsibility Act (ECRA). This facility entered into ECRA process as of October, 1988 due to the recent acquisition of Essex Chemical by Dow Chemical Corporation.

The object of this report is to quantify ground water movement patterns and to identify any ground water contaminants. During this investigation, ground water samples were collected from the existing twelve on-site monitor wells. The water samples were analyzed for USEPA Priority Pollutants, and a 40 pea library search was conducted. All sampling and analytical work was performed in accordance with NJDEP protocol.

ATTACHMENT

BR-5

3.0 HISTORICAL ENVIRONMENTAL ACTIVITIES

3.1 PREVIOUS SAMPLING ACTIVITIES

Over the last decade, Essex Chemical's Sayerville facility has experienced a few minor spills and a leaking underground storage tank. Since this time Essex has installed 12 ground water monitor wells and performed sampling 5 different times. The major constituents detected were bis-2-ethylhexyl phthalate, toluene, total xylenes, and benzene.

In January 1983, three of the underground storage tanks were removed. Ground water samples were collected from the monitor wells. Analysis showed that two wells had high concentrations of bis(2-ethylhexyl)phthalate. The following is a chronological list of sampling activities on site.

On June 20, 1978, Fred Rohm, Plant Engineer of the Sayerville facility reported a leak of DOP, a dioctyl-phthalate oil. As a result representatives from the Middlesex County Health Department and Spill Department were immediately on site to investigate. It was recommended that Essex hire an outside firm to handle the clean-up and disposal of the DOP contaminated soil and water. Consequently, Essex hired Olson and Hassold Corporation for this work.

Approximately one week later, a federal EPA inspector visited the facility for a formal inspection. As a result, the inspector requested standard operating procedures on every preventive measure instituted concerning items such as spill control and good housekeeping.

On August 30, 1988, approximately 200 gallons of DOP were spilled onto the ground. As a result, the site has been under close surveillance since then.

All monitor wells were sampled on March 30, 1979. They were tested for COD, Oil & Grease, Toluene, and Xylenes. The sample from well #107S contained 1 ppm of Xylene.

In July 1982 Essex Chemical had 8 soil borings and 4 water/other liquid samples taken from various points around the Sayerville tank farms. The reason for this was to see if any soil or water had been contaminated with toluene, MEK or plasticizers Essex used. No toluene or MEK was found in any of the soil samples. The report did indicate the detection of plasticizers primarily DOP, but may include others.

In September 1982 Essex Chemical Corporation authorized Woodward-Clyde Consultants to perform ground water sampling and quality testing programs. The reason for this was to determine the presence and concentrations of volatile organics, MEK, phthalate esters, and oil & grease. There was no contamination (at or near toxicity levels) from halogenated organics or volatile organics other than toluene (53.4 ppm in 107S). Phthalate esters were present in levels above the toxicity level in 106S. Oil & grease were present in 103S, and 103D.

In January 1983 three of the underground tanks were removed. Samples of each were taken and analyzed by Princeton Aqua Science. The samples from #106 and #104 detected 2810 ppm and 2210 ppm of bis(2-ethylhexyl) phthalate, respectively. An analysis was also done of the soil beneath the oil/water separator.

On July 14, 1983 ground water samples were obtained from the twelve observation wells by Woodward-Clyde Consultants. All wells were evacuated three times and immediately after recharge, samples were collected and bottled in accordance with DEP guidelines. These samples were tested for benzene, toluene, total xylenes, and bis(2-ethylhexyl)phthalate. The results of chemical analyses performed on the sample from observation well 107S indicated contamination several magnitudes of order greater than the other wells. This was consistent with all chemical analyses previously conducted at the site. All other samples tested were below the NJDEP guideline of 100 ppb.

On January 12, 1984 another round of samples were taken.

ATTACHMENT RR-7

Upon request by the NJDEP, another round of testing of 8 of the monitoring wells and stream was conducted on September 24, 1984. The wells were tested for levels of toluene, total xylenes and bis(2-ethylhexyl)phthalate.

On December 13, 1985 the monitoring wells were once again sampled for the same 3 parameters. The only contamination detected were as follows:

80 ppb xylenes in well 107
400 ppb bis(2-ethylhexyl)phthalate upstream
150 ppb bis(2-ethylhexyl)phthalate in the downstream sample

3.2 RECENT SAMPLING ACTIVITIES

The Sayerville facility was sampled on September 13, 1988 and September 21, 1988. A sample was obtained from each of the 12 monitor wells and one was taken from the stream. Samples were taken on two dates due to missed holding times at the laboratory. The samples were taken according to the procedures described in the New Jersey Department of Environmental Protection Field Procedures Manual for Water Data Acquisition.

First the water level in each well was determined. Then three times the volume of standing water in the well was removed to give a representative sample of surrounding formation. Previously decontaminated Teflon™ bailers were then used to obtain water samples. A field and travel blank was also obtained for each day of sampling. All samples were properly labelled at the field location, identified on chain of custody documentation, and placed in a sample transport cooler to be transported to the IT-Analytical Services Laboratory in Edison, New Jersey.

4.0 ANALYTICAL RESULTS

The results of the ground water laboratory analyses are in Appendix A and are summarized on Table 2. All analyses were performed at IT-Analytical Services Laboratories in Edison, New Jersey and Export, Pennsylvania.

Thirteen sampels were analyzed for priority pollutants +40 library search. These 13 include the 12 well samples. Priority pollutants scan involves the following anaylises. Volatile organics and base neutrals plus library searches on both. Acid extractables, priority pollutant metals, pesticides and PCBs.

Of the organics, only 1 sample showed a detectable concentration. Well 107S had a total xylene concentration of 400 ppb, 130 ppb of 1,1,2-trichloro-1,2,2-trifluoroethane and 65 ppm of dichlorodifluoromethane. All the samples had detectable concentrations of methylene chloride, but this can be attributed to laboratory contamination.

Wells 1S, 1D, 3D, 4S, 106S, 107S, 111S, 111D and the stream showed detectable concentrations of bis(2-ethylhexyl)phthalate. Concentrations in the wells ranged from 10 to 19 ppb. Wells 2S and 111D contained 1300 ppb of dichloromethane in each well.

No sample tested positive for pesticides or PCBs while 2 wells exhibited chromium concentrations above the ECRA guideline. Wells 3S and 4S had concentrations of 99 and 440 ppb respectively. The ECRA limit for chromium in water is 50 ppb.

Tables 3, 4, and 5 contain summaries of sampling results for the past seven sampling events. Compounds considered are toluene, xylene, and bis(2-ethylhexyl)phthalate. A list of all the ECRA action levels are contained in tables 6 and 7.

TABLE 1
MONITOR WELL WATER LEVEL ELEVATIONS
ESSEX CHEMICAL, SAYERVILLE FACILITY
SEPTEMBER 21, 1988

MONITOR WELL NO.	ELEVATION TO TOP OF PVC RISER (FT)	DEPTH TO GROUND WATER (FT)	GROUND WATER ELEVATION (FT)
OW-1S	29.51	1.31	28.20
OW-1D	29.41	1.93	27.48
OW-2S	27.74	4.56	23.18
OW-3S	27.11	6.25	20.86
OW-3D	27.15	9.10 (6.20)	18.05 (20.95)
OW-4S	29.93	7.75 (8.12)	22.18 (21.81)
OW-4D	29.79	7.52 (7.92)	22.27 (21.87)
OW-106S	26.53	1.56 (1.54)	24.97 (24.99)
OW-106D	28.79	2.16 (2.63)	26.63 (26.16)
OW-107S	30.86	6.10 (6.13)	24.76 (24.73)
OW-111S	27.03	2.03	25.00
OW-111D	25.97	1.62	24.35

* From top of PVC

() Indicates resampling after the holding times were exceeded for base neutrals

ATTACHMENT RR-10

TABLE 2
ANALYTICAL SUMMARY OF SEPTEMBER 14 AND 19, 1988 SAMPLING

WELL NO.	TOTAL VOC	TOTAL B/N	TOTAL METALS	TOTAL PESTICIDES	PCB
OW-1S	19.7	80	180	ND	ND
OW-1D	23.8	168	339	ND	ND
OW-2S	11.0	1325	140	ND	ND
OW-3S	22.1	128	468	ND	ND
OW-3D	23.9	205	251	ND	ND
OW-4S	27.5	91.5	1059	ND	ND
OW-4D	7.8	36	85	ND	ND
OW-106S	13.4	555	ND	ND	ND
OW-106D	23.0	16	66	ND	ND
OW-107S	825	626	33	ND	ND
OW-111S	7.5	69	44	ND	ND
OW-111D	8.3	1376	119	ND	ND
STREAM	15.8	450	143	ND	ND

ATTACHMENT RR-11

TABLE 3
SUMMARY OF CHEMICAL ANALYSES (ppb)
Toluene

Monitor Well No.	3/30/79*	8/17/82**	7/14/83 ⁺	Sampling Dates			
				1/12/84**	9/24/84**	12/13/85 ⁺⁺	9/13/88 ⁺⁺⁺
1S	--	--	<1	<1	2.2	ND	ND
1D	--	--	<1	0.9	1.3	ND	ND
2S	--	--	<1	1	1.1	ND	ND
3S	10	4	ND	--	--	--D	ND
3D	20	1	<1	--	--	--	ND
4S	--	--	<1	<1	<1	ND	ND
4D	--	--	ND	--	--	--	ND
106S	20	2	ND	<1	1.5	ND	ND
106D	20	15	4.6	<1	4.3	ND	ND
107S	30	53,400	9,300	990	1460	ND	ND
111S	20	10	<1	<1	1.5	ND	ND
111D	20	5	1.3	--	--	--	ND
Stream	--	--	--	2.4	1.1	ND	ND

* - Essex Lab
 ** - WMC (General Testing Corp.)
 + - Chyun Associates
 ++ - Princeton Aqua Science
 +++ - IT Corporation

TABLE 4
SUMMARY OF CHEMICAL ANALYSES (ppb)
Xylene

Monitor Well No.	Sampling Dates						
	3/30/79*	8/17/82**	7/14/83 ⁺	1/12/84**	9/24/84**	12/13/85 ⁺⁺	9/13/88 ⁺⁺⁺
1S	--	--	ND	<3	1.5	ND	ND
1D	--	--	ND	<3	<1	ND	ND
2S	--	--	ND	<3	<1	ND	ND
3S	10	--	ND	--	--	--	ND
3D	20	--	ND	--	--	--	ND
4S	--	--	1.3	<3	<1	ND	ND
4D	--	--	ND	--	--	--	ND
106S	20	--	ND	<3	<1	ND	ND
106D	20	--	ND	3	<1	ND	ND
107S	30	--	450	115	440	80	400
111S	20	--	ND	<3	<1	ND	ND
111D	20	--	ND	--	--	--	ND
Stream (upstream)	--	--	--	--	--	ND	ND
Stream (Downstream)	--	--	--	--	--	19	ND

ATTACHMENT RR-13

TABLE 5
SUMMARY OF CHEMICAL ANALYSES (ppb)
Bis (2-ethylhexyl)phthalate

Monitor Well No.	Sampling Dates						9/13/88
	3/30/79	8/17/82	7/14/83	1/12/84	9/24/84	12/13/85	
1S	--	--	80	44	93	ND	10
1D	--	--	27	26	260	ND	11
2S	--	--	61	<8	220	ND	ND
3S	--	1300	25	--	--	--	ND
3D	--	1500	28	--	--	--	13
4S	--	--	64	15	25	ND	19
4C	--	--	55	--	--	--	ND
106S	--	23,000	44	82	72	ND	14
106D	--	50	75	19	33	ND	ND
107S	--	150	140	260	23	ND	14
111S	--	110	33	8	87	ND	11
111D	--	ND	77	--	--	ND	20
Stream (upstream)	--	--	--	--	--	400	950
Stream (Downstream)	--	--	--	--	--	150	

TABLE 6
NEW JERSEY ECRA ACTION LEVELS FOR GROUND WATER

<u>COMPOUND</u>	<u>ACTION LEVEL (ppm)</u>
Arsenic (As)	0.05
Barium (Ba)	1
Cadmium (Cd)	0.01
Chromium (Cr)	0.05
Lead (Pb)	0.05
Mercury (Hg)	0.002
Selenium (Se)	0.01
Silver (Ag)	0.05
Copper (Cu)	1
Zinc (Zn)	5
Cyanide	0.2
Total Volatiles	0.01
Total Base/Neutrals	0.05
Total Acids	0.05
Specific Volatile or Base/Neutral Compounds	0.005
Polychlorinated Biphenyls (PCBs)	0.001
Total Petroleum Hydrocarbons (TPHC)	1

TABLE 7
NEW JERSEY ECRA LEVELS FOR
INDIVIDUAL COMPOUNDS IN GROUND WATER (2)

NJDEP GROUP A(1)

acrylonitrile
benzene
carbon tetrachloride
chloroform
1,2-dichloroethane
1,1-dichloroethylene
methylene chloride
1,1,2,2-tetrachloroethane
tetrachloroethylene
trichloroethylene
vinyl chloride
1,1,2-trichloroethane

NJDEP Group B-1

acrolein
bromoform
chlorobenzene
chlorodibromomethane
chloroethane
2-chloroethylvinyl ether
dichlorobromomethane
1,1-dichloroethane
1,2-dichloropropane
1,3-dichloropropylene
ethylbenzene
methyl bromide
methyl chloride
toluene
1,2-trans-dichloroethylene

NJDEP Group B-2

MCL*

1,1,1-trichloroethane

(ppb)
200

*EPA Proposed

NOTES:

- (1) The corrective action criteria for ground water of 5 parts per billion shall apply to individual chemical compounds classified in NJDEP Group A. Hence, the ambient concentration of any individual compound in NJDEP Group A shall not exceed 5 parts per billion in ground water.
- (2) The corrective action criteria for ground water is 10 parts per billion total Volatile Organic Toxic Pollutants.

ATTACHMENT RR-16

5.0 CONCLUSIONS

Viewing the data generated from the sampling events of September 13 and 21, 1988 the overall concentrations in the monitoring wells have declined. Many of the compounds previously detected are either no longer present or greatly reduced in concentration.

The volatile organic analyses indicate that organics are almost completely nonexistent on the site. Toluene is no longer detectable anywhere on site, while xylene is confined to well 107S. Methylene chloride was detected in every well, but also in the field, trip and method blanks. This indicates a laboratory contamination in all the samples and this data can be ignored.

Regarding the base neutral analyses, the only prior problem indicated was bis(2-ethylhexyl)phthalate. Concentration of this compound in the wells are low, but still present in wells 1S, 1D, 3D, 4D, 106S, 107S, 111S, and 111D. Most of the contamination is downgradient from the former underground storage tank area, with the exception of wells 1S and 1D. Also, high concentrations of dichloromethane were detected in wells 2S and 111D which are located approximately 50 feet apart. The fact that it is found in both the shallow and deep aquifers indicates that some cross contamination of the aquifers has occurred.

The wells were also analyzed for priority pollutant metals. The levels of chromium detected in wells 3S and 4S were above the ECRA guideline of 50 ppb, but since no previous test for metals has been done it cannot be compared to anything. Since the facility does not use chromium, its source is unknown. All detectable concentrations of the remaining metals were below ECRA action limits.

The samples were analyzed for both priority pollutant pesticides and PCBs. All samples showed no traces of either category.

ATTACHMENT SS

Ref. No. 4 p. 499

ANALYTICAL QUALITY ASSURANCE REVIEW
DOW - SAYERVILLE
SOIL SAMPLES
COLLECTED 27 OCTOBER AND 7 DECEMBER 1989

15 February 1990

Prepared For:

Dow Chemical Company, Inc.

Prepared By:

Environmental Resources Management, Inc.
855 Springdale Drive
Exton, Pennsylvania 19341

FILE: 780-05-03-01

ATTACHMENT

SS-1



Ref. No. 4 0.600

SECTION 1 INTRODUCTION

The following analytical quality assurance report is based upon a review of all analytical results generated for soil samples collected at the Dow - Sayerville Site on 27 October 1989 and 7 December 1989. A list of the samples that are included in this review is presented in Table 1-1 and Table 1-2. The analytical methods which were used for these analyses are summarized and referenced in Attachments 1 and 2, respectively. Data summary tables presenting the validated and qualified analytical results are attached at the end of this review.

All data for the analyses were reviewed for adherence to the specified analytical protocols. All results have been validated or qualified according to general guidance provided in the "Laboratory Data Validation Functional Guidelines for Evaluating Organic (and Inorganic) Analyses" (USEPA).

TABLE 1-1
Dow-Sayerville
October 1989 Soil Samples
Summary of Sample Data Reviewed

ERM Traffic Number	Sample Location	Sample Date	Analyses Performed	Laboratory I.D.
15633	R-1A	10/27/89	Moisture, Base Neutrals	04687
15634	R-2A	10/27/89	Moisture, Base Neutrals	04688
15635	R-3A	10/27/89	Moisture, Base Neutrals	04689
15636	R-3B	10/27/89	Moisture, Base Neutrals	46890
15637	R-3C	10/27/89	Moisture, Base Neutrals	04691
15638	R-4A	10/27/89	Moisture, Base Neutrals	04692
15639	R-4B	10/27/89	Moisture, Base Neutrals	04693
15640	R-4C	10/27/89	Moisture, Base Neutrals	04694
15641	R-5A	10/27/89	Moisture, Base Neutrals	04695
15642	R-5B	10/27/89	Moisture, Base Neutrals	04696
15643	R-6A	10/27/89	Moisture, Base Neutrals	04697
15644	R-6B	10/27/89	Moisture, Base Neutrals	04698
15645	R-6C	10/27/89	Moisture, Base Neutrals	04699
15646	R-8A	10/27/89	Moisture, Base Neutrals	04700
15647	R-8B	10/27/89	Moisture, Base Neutrals	04701
15648	R-8C	10/27/89	Moisture, Base Neutrals	04702
15649	R-7A	10/27/89	Moisture, Base Neutrals	04703
15650	R-7B	10/27/89	Moisture, Base Neutrals	04704
15651	R-7C	10/27/89	Moisture, Base Neutrals	04705
15652	R-7A DUP	10/27/89	Moisture, Base Neutrals	04706
15653	R-9A	10/27/89	Moisture, Base Neutrals	04707
15654	EB-1	10/27/89	Moisture, Base Neutrals	04708
	(Equipment Blank)			
15655	TB-1	10/27/89	Moisture, Base Neutrals	04709
	(Blind Travel Blank)			

ATTACHMENT SS-3



Ref. No. 4 p. 502

TABLE 1-2
Dow-Sayerville
December 1989 Soil Samples
Summary of Sample Data Reviewed

ERM Traffic Number	Sample Location	Sample Date	Analyses Performed	Laboratory I.D.
24749	DTB-2 (Blind Travel Blank)	12/7/89	Volatiles	05601
24750	DEB-2 (Equipment Blank)	12/7/89	Base Neutrals	05602
	DR-10	12/7/89	Moisture, Base Neutrals	05603
24751	DR-11	12/7/89	Moisture, Base Neutrals	05604
24752	DR-12	12/7/89	Moisture, Base Neutrals	05605
24765	DR-13A	12/7/89	Moisture, Base Neutrals	05606
24766	DR-13A MS/MSD	12/7/89	Moisture, Base Neutrals	05607
24754	DR-13B	12/7/89	Moisture, Base Neutrals	05608
24761	DR-14A	12/7/89	Moisture, Base Neutrals	05609
24763	DR-14B	12/7/89	Moisture, Base Neutrals	05610
24764	DR-14C	12/7/89	Moisture, Base Neutrals	05611
24762	DR-15A	12/7/89	Moisture, Base Neutrals	05612
	(Blind duplicate of DR-14A)			

ATTACHMENT

SS-4



Ref. No. 4 p. 503

SECTION 2 ORGANIC DATA

The organic analyses of twenty-one soil samples, one travel blank and one equipment blank collected on 27 October 1989, and eight soil samples, one travel blank, one equipment blank, and one blind duplicate sample collected on 7 December 1989 were performed by Intech Biolabs of East Brunswick, New Jersey. Thirty-three samples were analyzed for base-neutral extractables by USEPA Method 8270. Mass spectral library searches were performed for up to fifteen base-neutral spectra whose characteristics did not match the target compound spectra. In addition, a travel blank shipped with the 7 December 1989 samples was analyzed for volatile organic compounds by USEPA Method 8240.

The findings offered in this report are based upon a detailed review of the following criteria reported according to the New Jersey Department of Environmental Protection Tier II deliverables format: holding times, blank analyses, surrogate compound recoveries, matrix spike recoveries, duplicate analyses, bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP) mass tuning results, initial and continuing calibration data, quantitation of results, and qualitative mass spectral interpretation.

The organic analyses were performed acceptably, but require a few qualifying statements. It is recommended that the data only be used according to the qualifying statements presented below. Any data which are not qualified in this review should be considered qualitatively and quantitatively valid based on the criteria evaluated.

2.1 Data Qualifiers for 27 October 1989 Sample Results

- Laboratory results were reported with up to four significant figures in the numerical value. The numerical values reported by the laboratory have been rounded by ERM in accordance with USEPA CLP procedures, to contain two significant figures if the value is greater than ten, and one significant figure if the value is less than ten. These rounded values have been reported on the attached data summary tables.
- The positive result for bis(2-ethylhexyl) phthalate in soil sample R-4B should be considered a quantitative estimate because the concentration reported exceeded the calibrated range of the instrument. This has been indicated by placing a "J" qualifier next to the quantitative results on the data summary table.
- The laboratory incorrectly reported the total solids as 74% for soil sample R-7B. The raw laboratory data indicate that the correct value is 24%. This correct value has been placed on the data summary table.
- The laboratory did not provide the base-neutral dilution analysis results for soil samples R-1A, R-3B, R-4A, R-6B, R-8B, and R-8C in the original data package submission. This data was requested from the laboratory and incorporated into the data package.
- The laboratory inadvertently analyzed the sample submitted for site-specific matrix spiking analysis (R-7A MS, MSD) as an unspiked analysis. This analysis has been reported as R-7A DUP on the data summary table. Comparison of the results for R-7A and R-7A DUP indicates only trace

(estimated) concentration levels of base-neutral compounds are present, making it difficult to assess precision between the results. Bis (2-ethylhexyl) phthalate was detected in R-7A, but not R-7A DUP, and three polynuclear aromatic hydrocarbons were detected in R-7A DUP, but not R-7A. The combined results for these two samples should be used to assess contamination at location R-7A.

- All compounds which were qualitatively identified at a concentration below the method quantitation limits have been qualified with a "J" to indicate that they are quantitative estimates.
- All tentatively identified compounds (TICs) have been marked with a "J" qualifier to indicate that their levels are quantitative estimates. ERM has included on the data summary tables only those TICs which are demonstrated not to be the result of laboratory contamination or an instrument artifact.

2.2 Data Qualifiers for 7 December 1989 Sample Results

- Laboratory results were reported with up to four significant figures in the numerical value. The numerical values reported by the laboratory have been rounded by ERM in accordance with USEPA CLP procedures, to contain two significant figures if the value is greater than ten, and one significant figure if the value is less than ten. These rounded values have been reported on the attached data summary tables.
- The presence of di-n-butylphthalate in soil samples DR-14C and the blind duplicate of DR-14A (labelled DR-15A) is considered qualitatively invalid due to the level at which this

compound was present in the laboratory method and/or travel blanks. USEPA protocol requires that positive results for common contaminants, such as di-n-butylphthalate, that are less than or equal to ten times (10X) the method or travel blank contamination levels to be qualified as qualitatively invalid. This has been indicated by placing a "B" qualifier next to the reported quantitative results on the data summary table.

- The semivolatile extraction holding time for soil samples DR-14C and the blind duplicate of DR-14A (labelled DR-15A) exceeded the seven day extraction holding time mandated by 40 CFR Part 136 for aqueous samples by seven days. National guidelines currently recommend that this aqueous holding time criteria be applied to soil samples. Therefore, ERM evaluates soil sample holding times according to this aqueous criteria. Because the above samples were extracted outside the allowable holding time, the actual quantitation limits and/or positive results for these samples should be considered quantitative estimates and may be higher than reported. This has been indicated by placing a "J" qualifier next to the quantitative results on the sample data table.
- The positive results for bis(2-ethylhexyl)phthalate in soil samples DR-13A, DR-14B and DR-14C should be considered quantitative estimates because the concentration reported exceeded the calibrated range of the instrument. This has been indicated by placing a "J" qualifier next to the quantitative results on the sample data table.
- The blind duplicate sample analysis of DR-14A (labelled DR-15A) indicated that trace levels of several semivolatile compounds were detected above the method detection

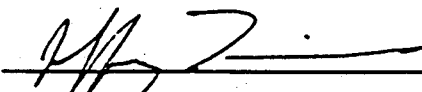
limit. These compounds, except bis(2-ethylhexyl) phthalate, were not detected in the original sample, possibly because of sample inhomogeneity. Therefore, relative percent differences (RPD) were not calculated between the original sample results and the blind duplicate sample results. Since the semivolatile compounds were detected in the blind duplicate sample, they should be considered to be qualitatively present at similar concentrations at the DR-14A sample location.

- All compounds which were qualitatively identified at a concentration below the method quantitation limits have been qualified with a "J" to indicate that they are quantitative estimates.
- All tentatively identified compounds (TICs) have been marked with a "J" qualifier to indicate that their levels are quantitative estimates. ERM has included on the data summary tables only those TICs which are demonstrated not to be the result of laboratory contamination or an instrument artifact.

SECTION 3 SUMMARY

The analyses were performed acceptably, but required a few qualifying statements. This analytical quality assurance review and data validation has identified the aspects of the analytical data that have required qualifying statements. Support documentation containing specific details on this quality assurance review is filed with the Dow - Sayerville project.

Report Prepared By:



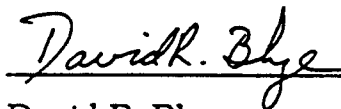
Jeffrey M. Lorrain

Quality Assurance Chemist

12/27/89

Date

Report Approved By:



David R. Blye

Quality Assurance Manager

2/15/90

Date

ATTACHMENT 1 METHODOLOGY SUMMARY

Analysis for Volatiles (8240)

The sample is purged with helium and the volatile compounds are collected on a Tenax/Silica gel trap. The trap is desorbed and the compounds flushed to the head of a packed column equipped in a gas chromatograph. Components are detected and quantified using a mass spectrometer.

Analysis for Base Neutrals (8270) (soil)

The sample is solvent extracted. The extract is concentrated and injected into a Gas Chromatograph equipped with a Mass Spectrometer. A fused silica capillary column provides separation of the semivolatile compounds.

Analysis for Moisture

A well-mixed sample is placed in a weighed beaker and dried to a constant weight in an oven at 103 to 105 C. The decrease in weight of the sample is the Moisture.

**ATTACHMENT 2
METHOD REFERENCES**

Analysis

References

Volatiles


USEPA SW-846 Test Methods for Evaluating Solid Waste, Third Edition Method 8240.

**Base Neutrals
Extractables**

USEPA, SW-846 Test Methods for Evaluating Solid Waste, Third Edition Method 8270.

Moisture

USEPA 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, (March 1983). Method 160.3.

ATTACHMENT 5542 

Ref. No. 4 p. 511

SECTION 6

DISCUSSION OF ANALYTICAL RESULTS

The At-Risk Sampling, Seep Area Sampling, and Implementation of the Supplemental Sampling Plan constitute Phase I of the investigation at the Essex Sayreville facility. The results of Phase I analysis will be discussed in this section for each AEC, and appropriate recommendations for a Phase II investigation will be presented in Section 7. Several AECs have been adequately evaluated by Phase I sampling and analysis, and no further action is recommended. The bis (2-ethylhexyl) phthalate spill and seep area (Area 1) will require additional sampling and analysis to determine the extent of contamination. Possible remediation activities will be discussed in a future cleanup plan.

6.1 Discussion of Areas of Environmental Concern

6.1.1: Area 1 - Bis (2-ethylhexyl) phthalate spill and seep area

Based on the results of the Seep Area Sampling conducted in October and December 1989 (soil sample locations R-1 through R-8 and DR-10 through DR-14), it was assumed that a concentrated source area of bis (2-ethylhexyl) phthalate existed in the swamp adjacent to sample location R-1 (see Attachment 1 for a detailed review of Seep Area sampling and analysis). Soil sample R-1A contained 1753 ppm BN+15 of which 1700 ppm was bis (2-ethylhexyl) phthalate. No other soil sample in this area contained more than 87 ppm BN+15.

Using this information, Essex submitted a Stream Encroachment Permit Application and a Freshwater Wetlands Permit Application to the NJDEP Division of Coastal Resources

on 30 March 1990. In these applications, Essex delineated proposed soil removal areas and described plans for the installation of a recovery sump to collect the bis (2-ethylhexyl) phthalate.

Essex conducted additional soil, creek, and ground water sampling and analysis at the facility during March and April 1990, as part of the implementation of the Phase I Sampling Plan. The results of these analyses indicate that the area of bis (2-ethylhexyl) phthalate contaminated soils is more extensive than originally expected. The analytical results of soil boring samples SS-9A and SS-9B contained 36,083 ppm and 10,000 ppm BN+15 respectively. These results indicate that the original source of contamination, the spill and/or leakage of bis (2-ethylhexyl) phthalate from former UGSTs #101 and/or #102, was not adequately cleaned up. The BN+15 detected in the creek water and sediment samples is related to the bis (2-ethylhexyl) phthalate seep.

The source of the TPH contamination identified in Burt's Creek may also be the former UGST farm area. TPH was stored in former UGSTs #109 and #111, and diesel fuel was stored in former UGST #116. Residual contamination from spills or leaks from these former tanks which may have occurred and were not cleaned up may be the current source of TPH contamination.

It is possible that a minor source of xylene exists in Area 1. Soil boring sample SS-9A and creek sediment sample S-21 contained 23 ppm and 48 ppm total xylene respectively. However, no xylene was detected in soil boring sample SS-9B, which indicates that the soil contamination identified in sample SS-9A is not vertically continuous to the water table. Xylene was detected in several ground water samples at the facility between 1979 and 1988. In the April 1990 ground water sampling

event, 9 ppb total xylene (below the current ECRA guideline level) was detected in the ground water sample from OW-107S. The source of the low level xylene contamination identified in Burt's Creek may also be the former UGST farm area. Xylene was stored in former UGSTs #106, and spills or leaks from this former tank which may have occurred may not have been completely cleaned up when the tanks were removed.

Additional sampling to delineate the extent of bis (2-ethylhexyl) phthalate (BN+15), TPH, and residual xylene contamination in the former UGST farm area is recommended. This proposal is discussed more fully in Section 7. A discussion of overall ground water quality in Area 1 is provided in Section 6.2.

6.1.2: Area 2 - Tank Farm and adjacent unpaved areas

The analytical results from Area 2 indicate that a minor amount of soil contamination exists to the east of the Tank Farm. TPH contamination has been delineated in the soils, but was not detected in the ground water. BN+15 contamination exists in the soil at levels slightly above the current ECRA action guidelines.

Area 2 was previously used as a storage area for various pieces of unused facility equipment (see the Supplemental Sampling Plan, Attachment 3), and the contamination in Area 2 is probably due to oils which may have leaked from this equipment. There is no evidence to suggest that any of the soil contamination in Area 2 is derived from the adjacent Tank Farm. The integrity of the Tank Farm is documented (see the Supplemental Sampling Plan, Part 1, Item C, Attachment 5), and there is no evidence or records of any spills or leakage. In addition, there was no significant contamination in soil sample P-1, which is to the east of the Tank Farm.

The contamination in Area 2 has been sufficiently delineated by Phase I sampling. The sampling grid adequately delineates the horizontal extent of soil contamination. The water table is approximately 1 to 2 feet below ground surface (see Table 4-1), and the sampling depths (0"-6" and 12"-18") are sufficient to delineate the vertical extent of soil contamination.

The potential source of contamination in Area 2 has been removed, since the area is no longer used for equipment storage. No additional sampling is recommended for this area.

6.1.3: Area 3 - Hazardous Waste Drum Storage Area and unpaved area to the west

The analytical results from Area 3 indicate that a minor amount of soil contamination exists to the east of the Hazardous Waste Drum Storage Area. TPH contamination has been identified in 5 shallow (0"-6") soil samples, and minor BN+15 contamination has been identified in one shallow (0'-6") soil sample.

The unpaved portion of Area 3 has not been used for any specific purposes, but is located adjacent to a paved parking area and access driveway. The contamination in Area 1 is probably due to motor oils and other lubricants which may have leaked from parked cars and adjacent vehicular traffic, and from occasional storm runoff. There is no evidence to suggest that any of the contamination in Area 3 is derived from the adjacent Hazardous Materials Storage Area. There is no evidence or records of any spills or leakage from the storage area. In addition, there is no significant contamination in the soil sample located immediately to the west of the storage area (P-22A and P-22B) or in the ground water sample from MW-2S.

The soil contamination in Area 3 has been sufficiently delineated by Phase I sampling. The sampling grid adequately delineates the horizontal extent of soil contamination. All soil contamination was limited to the 0"-6" sample interval. No contamination above the current ECRA action guidelines was found in any of the "deep" (12"-18") soil samples. No additional sampling is recommended for this area.

6.1.4: Area 4 - Empty Drum Storage Area

Analytical results indicate that there is no significant soil contamination in Area 4. Essex proposes to conduct no additional actions in this area.

6.1.5: Area 5 - Filter Burn Area

The analytical results indicate that a minor amount of soil contamination exists in Area 5. The shallow soil sample SS-7A (0"-6") contained 13 ppm BN+15, while the deep soil sample SS-7B (12"-18") contained less than 1 ppm BN+15.

The contamination in Area 5 results from the past practice of cleaning metal filters containing urethane sealant by burning. This filter cleaning method is no longer in practice, and the potential source of the contaminant (residual carbon) is no longer present. The area of contaminated soil is relatively small, and the vertical extent of contamination has been delineated by the results of the deep soil sample analysis. No additional sampling is recommended for this area.

6.1.6: Area 6 - Former NJPDES Discharge Point

The analytical results indicate that creek sediment contamination exists in Area 6. This former NJPDES discharge

point was taken out of service and sealed with concrete in late 1983/early 1984. Contamination in this area is probably related to the existence of the upstream bis (2-ethylhexyl) phthalate spill and seep area (Area 1), rather than to NJPDES discharges which may have occurred over six years ago into Burt's creek. Therefore, contamination in creek sample SS-12 will be considered part of the Area 1 contamination (see Plate 4).

6.1.7: Area 7 - Kneader Hot Oil Extruder

Analytical results indicate that there is no significant soil contamination in Area 7. Essex proposes to conduct no additional actions in this area.

6.1.8: Area 8 - Steam Condensate Drain

The analytical results indicate that a minor amount of soil contamination exists in Area 8. No additional sampling is recommended for this area. On 11 May 1990, Essex installed a steam collection system, and no longer discharges steam condensate to the spill prevention/storm drain system. Essex will provide the NJDEP with documentation of the system.

6.1.9: Area 9 - Spill Prevention/Sewer Drains

The analytical results and inspection indicate that the Spill Prevention/Sewer Drains appear to be performing as intended. Drains #2, #3, #4, #5, and #6 collect water and sediment from inside the fenced-in portion of the facility and channel this material through the oil/water separator. Any oil that collects in the oil/water separator is cleaned out and properly disposed of on a regular basis. The water is then gravity discharged into the Middlesex County Utility Authority Sanitary Sewer System. The Spill Prevention/Sewer Drain system prevents any contaminants which may be released inside the fenced-in portion of the

facility from entering the surrounding or underlying soil or ground water. Water and sediment analyzed from these drains contained TPH and BN+15 contamination, but there is no evidence that any contaminated water or sediment is leaking from the system into the underlying unpaved areas.

The Spill Prevention/Sewer Drains #1 and #11 collect water and sediment from the paved areas outside of the fenced in portion of the facility, and channel this material directly into the Middlesex County Utility Authority Sanitary Sewer System. These drains service areas of minimal facility activity, and the concentrations of TPH and BN+15 found in the water and sediment from drain #11 are, in general, considerably lower than contaminant concentrations found in the drains located inside the fence.

Essex plans to repair all cracked drains to prevent any leakage of contaminated water or sediment to the subsurface, and will provide the NJDEP with documentation of the repair work.

6.1.10: Area 10 - Shipping Door Area

Analytical results indicate that there is no significant soil contamination in Area 10. Essex proposes to conduct no additional actions in this area.

6.2 Discussion of Facility Ground Water Quality

The analytical results indicate that currently there is no significant ground water contamination problem at the Sayreville facility. With the exception of methylene chloride laboratory contamination, none of the ground water samples contained levels of contaminants above the ECRA action guidelines. A review of ground water analytical data collected between 1979 and 1988 (see the Supplemental Sampling Plan, Attachment 8)

indicates that the overall concentrations of the chemical compounds detected have declined considerably over a ten year period. The results of the April 1990 sampling indicate that ground water quality continues to improve. There is no evidence of a ground water contaminant plume under the facility.

The results of the ground water analytical data and the water table contour maps (see Section 4, Figures 4-1 and 4-3) indicate that it is unlikely that ground water migrates a significant distance to the north of Burt's Creek. Water (and associated contaminants) from the swamp area flows to the west, southwest, or northwest, generally draining toward Burt's Creek. Any surface water that may temporarily migrate to the north of the swamp due to surface overland flow during storms will eventually flow back in a south to southwesterly direction toward Burt's Creek. Thus it is unlikely that a contaminant plume could have migrated offsite to the north. This evidence suggests that the installation of an additional monitoring well to the north of Burt's Creek is not warranted.

REFERENCE NO. 5

Rev'd 11/4/94

REMEDIAL ACTIVITIES SUMMARY AND NATURAL REMEDIATION PROPOSAL

**Essex Specialty Products, Inc.
One Crossman Road South
Sayreville, New Jersey
ISRA Case No. 88904**

Prepared For:

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November 1994

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Ref. No. 5 p. 1

TABLE OF CONTENTS

Section	Page
1.0 INTRODUCTION	1
2.0 REVIEW OF AREAS OF CONCERN	4
3.0 REVIEW OF GROUNDWATER ISSUES	12
4.0 NATURAL REMEDIATION PROPOSAL	13

LIST OF TABLES

Table 1	Sewer Drain No. 5
Table 2	Sewer Drain No. 11
Table 3	Main Excavation/Pavement Area
Table 4	Subarea B1
Table 5	Additional Excavation
Table 6	Subarea B2
Table 7	Subarea B3
Table 8	Abandoned Pipe Area
Table 9	Subarea D
Table 10	Oil/Water Separator Area
Table 11	Supplementary Post-Excavation Soil Sampling
Table 12	Wetlands
Table 13	Groundwater Sampling

LIST OF FIGURES

Figure 1	General Site Map
Figure 2	Sewer Drain Nos. 5 and 11
Figure 3	Sewer Drain No. 5
Figure 4	Phase I Oil/Water Separator Soil Sample Locations
Figure 5	Post-Excavation Sample Locations - Additional Excavation Areas
Figure 6	Post-Excavation Sample Locations - Subareas B-1, B-2, and B-3
Figure 7	Results of Analytical Testing (Groundwater)
Figure 8	Post-Excavation Sample Locations - Subarea D
Figure 9	Post-Excavation Sample Locations - September 1993 Re-sampling Activities
Figure 10	Backfilling and Restoration Areas

LIST OF ATTACHMENTS

Attachment 1	NJDEP Sep. 20, 1990, Nov. 12, 1992, and July 13, 1993 Letters
Attachment 2	Borrow Source Information

Ref. No. 5 p. 2

INTRODUCTION

This report summarizes the remedial activities performed at the Essex Specialty Products (Essex) facility located at One Crossman Road South, Sayreville, New Jersey ("Facility" or "Site") and presents a proposal to implement a natural remediation program for groundwater cleanup.

Section 1.0 (this section) is a brief summary of cleanup activities at the Site. Section 2.0 is a review of the status of Areas of Concern (AOC). Section 3.0 is a summary of groundwater issues and Section 4.0 is the Natural Remediation Proposal.

As part of an ongoing Industrial Site Recovery Act Program (ISRA Case Number 88904), four reports have been submitted by Woodward-Clyde Consultants (WCC) to the New Jersey Department of Environmental Protection ("NJDEP" or "Department"); these reports document the results of investigative and remedial activities conducted at the Site. These four previously submitted reports are:

- Final ECRA Soils Cleanup Report (July 1992);
- Summary Report, Phase I Groundwater Results (July 1992);
- Response to NJDEP letter of November 13, 1992 to Essex (February 11, 1993); and,
- Response to Item II.7 of NJDEP letter of November 13, 1992 to Essex (February 26, 1993).

The contents of each of these reports are briefly summarized below.

Final ECRA Soils Cleanup Report

Approximately 175 soil samples were collected during implementation of the Cleanup Plan. These samples were used to define the vertical and horizontal extent of base neutral, total petroleum hydrocarbon, and volatile organic contamination. The limits of the excavation were controlled, in part, by physical barriers (e.g., the foundation of the existing building) and the presence of groundwater.

In performing the excavation activities described in the Cleanup Plan, approximately 3,500 tons of contaminated soil were excavated and transported off site for disposal.

Summary Report - Phase One Groundwater Results

The results of analytical testing performed on 12 groundwater samples collected in March, 1992 indicated that only one monitoring well, MW-7S, had contaminant concentrations above the NJDEP February 1992 Proposed Groundwater Cleanup Standards (N.J.A.C. 7:26D; these proposed standards were used by the Department during the time of groundwater sampling). The primary constituent in MW-7S was bis(2-ethylhexyl) phthalate (BEHP), which was present in concentrations of 780 parts per billion (ppb) and 920 ppb (duplicate sample). The Proposed NJDEP Cleanup Standard for BEHP was 30 ppb.

As described in the Final ECRA Soils Cleanup Report, the extent of soil contamination was identified and approximately 3,500 tons of contaminated soil were excavated and transported off site for disposal. No other potential sources of groundwater contamination are known to exist.

Response to NJDEP letter of November 13, 1992

Essex responded to the soil and groundwater issues presented by the NJDEP in a letter dated February 11, 1993 with the exception of Item IL7. This item consisted of a request for a site map showing the location of an off-site monitoring well, Ethyl Well No. 6, as well as the results of a proposed confirmatory round of groundwater sampling. These items were provided in a separate report described below ("Response to Item IL7").

The other information submitted to the NJDEP included excavation depths of samples collected at several AOC, laboratory quality control information, a 0.5 mile-radius well search, and construction information for Ethyl Well No. 6. In addition to the above information, a review of all AOC identified by NJDEP since the initiation of this ISRA case, including comparison of the analytical results with the Proposed Cleanup Standards, was provided.

Response to Item II.7 of NJDEP letter of November 13, 1992

This report provided a site map and a summary of the results of analytical tests performed on groundwater samples (including Ethyl Well No. 6) collected in December, 1992. Similar to the March, 1992 groundwater results, MW-7S again showed elevated concentrations of BEHP (140 ppb). MW-8S showed slight exceedences of benzene (8 ppb) and xylenes (45 ppb) (the Proposed NJDEP Standard for BEHP, benzene, and xylenes was 30 ppb, 1 ppb, and 40 ppb, respectively). The sample from Ethyl Well No. 6 had only 1 ppb of methylene chloride.

REVIEW OF AREAS OF CONCERN

This section summarizes the status of areas of concern at the Site which were described in the November 13, 1992 and July 13, 1993 NJDEP letters to Essex. These letters are provided in Attachment 1. A general site map showing the location of the AOC is presented in Figure 1. AOC specific site maps and tables summarizing the analytical results are also provided in this report.

Sewer Drain No. 5

As shown in Figure 1, Sewer Drain No. 5 is located northeast of the manufacturing building. Sewer Drain No. 5 was investigated due to its proximity to the manufacturing building and the potential for contamination due to stormwater runoff.

During the spring of 1991, as described in the Final ECRA Soils Cleanup Report, soil was excavated from this area and post excavation samples SD5-2 to SD5-10 were collected. Because of high levels of total petroleum hydrocarbon compounds (TPHC) in sample SD5-6 [57,200 parts per million (ppm) TPHC], additional soil was excavated. Two additional post excavation samples were collected (SD5-11 and SD5-12) and analyzed, and found to contain contaminant concentrations below the NJDEP February 1992 Proposed Subsurface Soil Cleanup Standards (Figures 2 and 3, and Table 1).

On the basis of these results, Essex proposed no further action for this area. NJDEP approved the no further action proposal for this area in the November 13, 1992 letter to Essex and the area was subsequently backfilled.

Sewer Drain No. 11

Sewer Drain No. 11 is located southwest of the manufacturing building (Figure 1). It was investigated due to its proximity to the manufacturing building and the potential for contamination due to stormwater runoff.

As described in the Final ECRA Soils Cleanup Report, soil from this AOC was excavated and post excavation samples SD11-2 to SD11-10 were collected. The analytical results showed that there were no exceedences of the Proposed Soil Cleanup Standards (Figure 2 and Table 2).

On the basis of these results, Essex proposed no further action for this area in the Final ECRA Soils Cleanup Report. NJDEP approved the no further action proposal for this area in the November 13, 1992 letter to Essex and the area was subsequently backfilled.

Main Excavation/Pavement Area

As shown in Figure 1, the Main Excavation/Pavement Area is located at the northeast corner of the manufacturing building. This area was investigated because it was the site of a former underground tank farm that was removed before the WCC investigation.

As described in the Final ECRA Soils Cleanup Report, soil samples T1 to T5 were collected on July 31, 1991 from test borings in the pavement area near the main excavation. The results of analytical testing performed on these soil samples showed no exceedences of the Proposed Cleanup Standards (Figure 4 and Table 3).

On the basis of these results, Essex proposed no further action for this area. NJDEP approved the no further action proposal for this area in the November 13, 1992 letter to Essex and the area was subsequently backfilled.

Original Excavation (Area 1)

As shown in Figure 5, Subareas A, B-1, B-3, and C comprise the Original Excavation. These subareas are located north of the manufacturing building. In a letter dated September 20, 1990 (Attachment 1), the Department required that Essex analyze all Area 1 post excavation soil samples for TPHC. Only those samples that had TPHC concentrations greater than 500 ppm would need to be analyzed for base neutral compounds and benzene, toluene, and xylenes.

Subarea A: As described in the Final ECRA Soils Cleanup Report, Subarea A was completely excavated during March 1991 to permit the installation of a sump as part of a seep remediation program; therefore, post excavation samples were not required by the NJDEP (Figure 5).

Subarea B-1: As described in the Final ECRA Soils Cleanup Report and the Essex response to the NJDEP letter of November 13, 1992 to Essex, this subarea was excavated to a depth of 5 ft and eighteen post excavation samples (B1-1 to B1-18) were collected in March, 1991 (Figure 6 and Table 4). BEHP concentrations in four samples exceeded the site-specific cleanup criterion of 210 ppm (NJDEP letter July 26, 1991). Soil samples B1-2, B1-7, B1-8, and B1-10 had BEHP concentrations ranging from 391 ppm to 1814 ppm. Consequently, the excavation was extended to the east of Subarea B-1 and 36 additional samples (AE-1 to AE-36) were collected in April, 1991. Again, four AE samples exceeded the site BEHP criteria of 210 ppm. Samples AE-5, AE-8, AE-14, and AE-20 had BEHP concentrations ranging from 320 ppm to 960 ppm (Figure 5 and Table 5).

On the basis of observations made during excavation activities, it was decided by Essex and WCC, with the concurrence of Ms. Grace Jacob (the NJDEP Case Manager), that continuing the excavation below the water table would risk penetration of the underlying clay layer, potentially contaminating the lower confined aquifer. Therefore, the excavation was not extended below the water table.

Because of the location of the clay layer and on the basis of the analytical results, Essex proposed no further action for this subarea. NJDEP approved the no further action proposal for this subarea in the July 13, 1993 letter to Essex and the subarea was subsequently backfilled.

Subarea B-2: As described in the Final ECRA Soils Cleanup Report and the Essex response to the NJDEP letter of November 13, 1992, seventeen post excavation samples (B2-1 to B2-17) were collected from Subarea B-2 in March, 1991. BEHP concentrations in samples B2-1 (1400 ppm) and B2-2 (1100 ppm) exceeded the site-specific 210 ppm

criterion (Figure 6 and Table 6). Additional excavation was not possible at this location due to the presence of groundwater and the proximity of the confining clay layer.

Essex proposed no further action for this subarea. NJDEP approved the no further action proposal for this subarea in the July 13, 1993 letter to Essex and the subarea was subsequently backfilled.

Subareas B-3 and C: As described in the Final ECRA Soils Cleanup Report, these subareas were excavated to a depth of 2 ft and 15 post excavation samples (B3-1 to B3-15) were collected in March, 1991 (Figure 6). Subarea C, located within Subarea B-3, was not considered as a separate subarea due to its relatively small size; instead, it was included with the excavation of Subarea B-3. The analytical results showed that the TPHC concentrations in the post excavation samples did not exceed the 500 ppm standard imposed by the NJDEP (Table 7). Therefore, additional analyses were not required.

On the basis of these results, Essex proposed no further action for these subareas. NJDEP approved the no further action proposal for these subareas in the November 13, 1992 letter to Essex and the subareas were subsequently backfilled.

Abandoned Pipe Area

In April, 1991, additional excavation activities were conducted where a pipe was discovered and subsequently partially removed and sealed. This excavation was initiated after a black oily substance was observed at the base of the hole where the abandoned pipe was removed.

23 soil samples (AP-2 to AP-24) and one water sample (AP-1) were collected in March, April, and May of 1991. Samples from the base of the excavation were collected at a depth of about 6 ft, the depth at which groundwater was encountered. The excavation was deepened to about 7 ft after collection of these base samples in an attempt to remove as much potentially contaminated material as possible (Figure 5).

Soil samples AP-2 through AP-16 were initially collected; most of these samples showed relatively high level of TPHC [ranging from 760 ppm (AP-2) to 5,250 ppm (AP-3)]. BEHP levels were also relatively high, ranging from about 2 ppm (AP-15) to 2,700 ppm (AP-12). However, the water sample AP-1, collected from the mouth of the pipe, had only relatively low TPHC levels (144 ppm) and low levels of base neutral compounds (0.52 ppm total BNs) (Table 8).

Additional soil was excavated and post excavation samples AP-17 to AP-24 were collected in May, 1991. Only one sample had TPHC levels above the NJDEP standard of 500 ppm (AP-22, 596 ppm TPHC).

The results of analytical testing performed on groundwater samples collected in December 1992 from monitoring wells MW-8S and OW-107S were reviewed to evaluate whether groundwater quality in the shallow aquifer has been adversely impacted by the presence of the abandoned pipe. Groundwater sample MW-8S had a slight exceedence of benzene at a concentration of 8 ppb and of xylenes at a concentration of 45 ppm [the NJDEP January 7, 1993 Standard (N.J.A.C 7:9-6) for benzene and xylenes was 1 ppb and 40 ppb, respectively]. Groundwater sample OW-107S had no exceedences of NJDEP Groundwater Quality Standards (Figure 7).

Because additional soil could not be excavated due to physical boundaries and the intersection of the water table, and because groundwater quality was not impacted by the presence of the abandoned pipe, Essex proposed no further action for this area. NJDEP accepted the no further action proposal for this area in the July 13, 1993 letter to Essex and the area was subsequently backfilled.

Subarea D

As shown in Figure 1, Subarea D is located northwest of the manufacturing building, adjacent to the parking area. This area was investigated due to the potential for contamination due to runoff from the parking lot.

This area was excavated to a depth of 0.5 ft during March 1991 and five post-excavation samples (D-1 to D-5) were collected (Figure 8). The TPHC levels in these samples

ranged from 50 ppm (D-1) to 120 ppm (D-5) (Table 9). Because the TPHC levels were below the 500 ppm NJDEP site standard, additional analyses were not required.

Essex proposed no further action for Subarea D. NJDEP accepted the no further action proposal for this area in the July 13, 1993 letter to Essex and the subarea was subsequently backfilled.

Oil/Water Separator Area

In April, 1991, a trench was excavated adjacent to an existing underground oil/water separator to evaluate the extent of a free product layer which was observed above the water table (Figure 5). Six post excavation samples (OW-1 to OW-6) were collected (Table 10). Because the samples had relatively high TPHC levels (ranging from 729 ppm to 936 ppm) and relatively high BEHP levels (ranging from 870 ppm to 2,100 ppm) additional soil was removed from this area. In addition, because the integrity of the oil/water separator was suspect, it was also removed and transported off site for proper disposal.

In August, 1991, 11 additional post-excavation samples (OW-7 to OW-17) were collected from the Oil/Water Separator Area (Figure 4). The analytical results indicated the continued presence of elevated levels of TPHC (up to 1,930 ppm in OW-12) and base neutral compounds (up to 1,244 total BNs in OW-10) in this area. Additional excavation activities were subsequently conducted.

In September and October, 1991, the excavation was expanded and nine additional post-excavation samples (OW-18 to OW-24B) were collected. The analytical results showed that elevated levels of base neutral compounds (up to 2,008 ppm total BNs in OW-19) remained in the excavation. The proximity of the building foundation, however, prevented any additional excavation.

To evaluate the impact that any residual contaminated soil might have on groundwater quality, the analytical results from groundwater samples MW-8S and OW-107S that were collected in December, 1992, were evaluated. Groundwater sample MW-8S had a slight exceedence of benzene at a concentration of 8 ppb and of xylenes at a concentration of

45 ppm [the NJDEP January 7, 1993 Standard (N.J.A.C. 7:9-6) for benzene and xylenes was 1 ppb and 40 ppb, respectively]. Groundwater sample OW-107S had no exceedences of NJDEP Groundwater Quality Standards (Figure 7). Because the quality of shallow groundwater was apparently not impacted by the residual soils, Essex proposed no further action for this area. NJDEP approved the no further action proposal in the July 13, 1993 letter to Essex and the area was subsequently backfilled.

Area 8

The NJDEP approved no further action for Area 8 (Figure 1) in the July 13, 1993 letter to Essex with the following statement: "Based on current residential cleanup criteria, levels of Cd, Pb and As are elevated. Since this area is no longer accessible, and the levels do not warrant any further concern for an industrial facility, the proposal for no further action is acceptable."

Area 9

Area 9 is the stormwater system located on the north side of the manufacturing building (Figure 1). The pipes and catch basins which comprise the system will be pressure washed and the condition of each will be documented with photographs. This information will be submitted to NJDEP. The NJDEP will be notified before pressure washing activities begin.

Soil Backfill

In compliance with the September 20, 1990 NJDEP Cleanup Approval Letter, approximately 3,500 tons of soil were removed from the northeast corner of the Site and disposed of properly; the soil removal was completed in early 1992. Verbal approval to backfill the existing excavations with no further remedial action was granted to Mr. Robert Gaibrois of WCC by Ms. Jacob, NJDEP Case Manager, on May 20, 1993. A written confirmation of this request was received by Mr. Gaibrois from NJDEP on June 15, 1993.

Shilke Construction Co., Inc. was awarded the contract for backfilling of the excavation; backfilling activities were completed on April 30, 1994. Information concerning the backfill borrow sources is provided in Attachment 2.

Supplementary Sampling

Supplementary post excavation samples were collected at the Site on September 17, 1993 (Figure 9). Locations that previously had the highest contaminant concentrations were resampled to help evaluate the need for a future deed restriction at the Site.

The results of analytical testing performed on these samples were provided in a letter to NJDEP on October 22, 1993. In general, the areas that were resampled showed significant decreases in BEHP levels from several thousand ppm to levels below or only slightly above the site BEHP standard of 210 ppm (Table 11).

Wetlands Area

In May, 1991, 4 soil samples (WL-1 to WL-4) were collected from the undisturbed portion of the wetlands to help evaluate the horizontal extent of contamination (Figure 5). Sample WL-1 had TPHC concentrations that did not exceed the Site standard of 500 ppm and, consequently, additional analyses were not conducted. The other three samples had TPHC concentrations ranging from 692 ppm to 4,040 ppm. The concentrations of VOCs and BNs, however, were generally less than 1 ppm in all three samples (Table 12).

The disturbed wetlands area was restored in accordance with the Backfilling Activities and Wetlands Restoration Project Manual prepared in August, 1993. A 1 ft thick layer of topsoil/loam was placed in the wetlands area and the area planted with saplings of red maple *Acer rubrum*, and pin oak *Quercus palustris*. Reed canary grass *Phalaris arundinaceae* was also seeded in the wetlands area (Figure 10). The growth of these plantings will be monitored to confirm an 85 percent survival rate.

3.0 REVIEW OF GROUNDWATER ISSUES

This section addresses the groundwater issues which were listed in the July 13, 1993 letter from NJDEP to Essex. The NJDEP letter is provided in Attachment 1.

Data Review

The Department reviewed the groundwater quality assurance/quality control (QA/QC) package which was dated February 26, 1993 and found it to be acceptable (this QA/QC package pertains to the groundwater sampling event conducted in December 1992).

Well Search

The Department reviewed the well search and found it to be acceptable. Based on the information provided, no potable wells exist downgradient of the Site and only one domestic well, located approximately 0.5 mile upgradient of the Site, exists.

Ethyl Well #6

The Department reviewed the field measurements obtained for Ethyl Well #6 in lieu of Form A and found the construction to be acceptable.

Groundwater Results

The Department reviewed the results of analytical testing performed on groundwater samples collected during December 1992 and summarized the results in their July 13, 1993 letter to Essex. The Department noted that only two wells had slight exceedences of ground water standards (Figure 7). Sample MW-7S had 140 ppb BEHP, while MW-8S had 8 ppb benzene and 45 ppb xylenes (Table 13).

The Department requested that Essex identify and quantify the 3.2 ppm base neutral tentatively identified compound in sample OW-1D. This information was provided to the Department on July 16, 1993.

NATURAL GROUNDWATER REMEDIATION PROPOSAL

As described in the previous sections, the primary source of contamination at the Site, the soil, was excavated and properly disposed of. No other sources of contamination are known to exist. Because the results of analytical testing of groundwater samples collected during the December 1992 sampling event show that the quality of groundwater is not significantly impacted, Essex requests that a natural groundwater remediation program be approved for this Site.

The analytical test results for samples collected from monitoring wells screened in the lower, confined aquifer indicate that no exceedences of the NJDEP Class IIA Groundwater Standards have occurred (Figure 7 and Table 13). All analytical results for samples collected from monitoring wells screened in the upper, unconfined aquifer [except samples from monitoring wells MW-7S and MW-8S (Figure 7 and Table 13)] show concentrations that do not exceed NJDEP groundwater quality standards.

Bis(2-ethylhexyl)phthalate was detected in samples collected from monitoring well MW-7S at a concentration of 140 ppb (NJDEP Standard is 30 ppb for BEHP). Benzene and xylenes were measured at concentrations of 6 ppb and 45 ppb, respectively, in samples collected from monitoring well MW-8S (NJDEP Standard is 1 ppb for benzene and 40 ppb for total xylenes).

These results indicate that only low levels of contaminants are present in isolated areas of groundwater beneath the Site. The contaminants are limited to the upper, unconfined aquifer and center around the vicinity of monitoring wells MW-7S and MW-8S. Based on these results, Essex does not believe that active groundwater remediation is warranted at the Site. Accordingly, Essex proposes to conduct sampling and analytical testing of monitoring wells MW-7S, MW-8S, OW-2S and OW-4S for six consecutive quarters. Monitoring wells OW-2S and OW-4S will serve as the downgradient sentinel wells for the natural remediation program. The groundwater samples will be analyzed for total petroleum hydrocarbon compounds, volatile organic compounds, and base neutral compounds. The data will be submitted to the Department after each sampling round (following validation by WCC chemists).

The data obtained from these six sampling events, in addition to the results of the previous two sampling events, will be statistically evaluated using the Mann-Whitney U Test. Once the eight rounds of data have been evaluated, Essex will recommend to the NJDEP what, if any, additional actions will be necessary for groundwater remediation. This approach is consistent with the current NJDEP policy regarding natural remediation programs for groundwater.

TABLE 1
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
SEWER DRAIN NO. 8
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Location:	SDS-2 5/22/91 0 - 6" sidewall	SDS-3 5/22/91 0 - 6" base	SDS-4 5/22/91 0 - 6" sidewall	SDS-5 5/22/91 0 - 6" base	SDS-6 5/22/91 0 - 6" sidewall	SDS-7 5/22/91 0 - 6" base
Total Petroleum Hydrocarbons	Cleanup Levels (1)						
	-	154	210	186	169	57200	356
Base Neutral Compounds							
Phthalates							
Diethylphthalate							
Di-n-Butylphthalate	-	0.120 J					
bis(2-Ethylhexyl)Phthalate	100	4.300	3.100	0.70J	0.33J	0.530J	0.25J
Di-n-Octyl Phthalate	210*	1.2 B	.320B	1.0 B	2.6B	240B	14B
Polynuclear Aromatic Hydrocarbons	100						
Naphthalene						61.0	14.0
Fluorene	100						
Phenanthrene	100						
Anthracene	-					0.60J	
Fluoranthene	500					0.33J	0.014J
Pyrene	500					1.3J	0.16J
Other Base Neutrals	500					0.16J	0.022J
N-Nitrosodiphenylamine						0.26J	0.25J
	100					1.5J	0.15J
Tentatively Identified Compounds							
Unknowns							
Unknown Alkanes	-	.19JA - 48JBA	0.23JB - 67JBA	0.230 J - 63JBA	0.27J - 35JAB	4.4J - 67JAB	0.36J - 53JBA
Unknown Alkenes	-	.87JB	0.22J - 0.66JB	0.410JB	0.50JB	4.3J - 6.6J	0.21J - 2.9J
Unknown Acids	-	.21J					
Unknown Hydrocarbons	-	.8J	.230J	0.950J	0.89J		
Sulfur	-			0.180J			
Unknown Phthalates	-			0.360J			
Unknown Cyclics and/or Aromatics	-						
Unknown PCB	-					9.8J - 20J	
Others	-					3.1J - 6.2J	0.21J - 0.88J
	-					4.4J	

A = Compound is an alkyl condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

ND = Not Detected

(1) = NJDEP Proposed Soil Cleanup Standards (February 1993)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1994)

ND = Not specified by NJDEP

Concentrations reported in ppm

TABLE 1
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
SEWER DRAIN NO. 8
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Location:	SD5-8 5/22/91 0 - 6" sidewall	SD5-9 5/22/91 0 - 6" base	SD5-10 5/22/91 0 - 6" base	SD5-11 6/28/91 0 - 6" sidewall	SD5-12 6/28/91 0 - 6" sidewall
	Cleanup Levels (1)					
Total Petroleum Hydrocarbons	--	208	193	608	2316	1566
Base Neutral Compounds						
Phthalates						
Diethylphthalate	--					
Di-n-Butylphthalate	100	2,200	0.210 J	0.310 J	3.2 B	1.9 B
bis(2-Ethylhexyl)Phthalate	210*	1,800	3.28	4.28	5.5 B	9.6 B
Di-n-Octyl Phthalate	100			0.330J	650 J	260 J
Polynuclear Aromatic Hydrocarbons						
Naphthalene	100					
Fluorene	100					
Phenanthrene	--					
Anthracene	500			0.027J		
Fluoranthene	500					
Pyrene	500					
Other Base Neutrals				0.066J		
N-Nitrosodiphenylamine	100				0.048 JB	0.051 JB
Tentatively Identified Compounds						
Unknowns	--	0.18JB-50JBA	0.076J-56JBA	0.27J-55JAB	0.330JA-95JAB	0.320JB-250JAB
Unknown Alkanes	--	0.82JB	0.25 JB - 0.75 J	0.16J-0.36J		
Unknown Alkenes	--					
Unknown Acids	--	0.25J				
Unknown Hydrocarbons	--	0.18J				
Sulfur	--	0.110J			51.0 J	
Unknown Phthalates	--			0.690J	1.20 J	
Unknown Cyclics and/or Aromatics	--			0.650J		
Unknown PCB	--					
Others	--				0.310J-2.50J	0.250J-2.50J

A = Compound is an aldo condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

ND = Not Detected

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1994)

-- = Not specified by NJDEP

All concentrations reported in ppm

TABLE 2
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
SEWER DRAIN NO. 11
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Location:	SD11-2 5/22/91 0 - 6 " sidewall	SD11-3 5/22/91 0 - 6 " base	SD11-4 5/22/91 0 - 6 " sidewall	SD11-5 5/22/91 0 - 6 " base	SD11-6 5/22/91 0 - 6 " sidewall
	Cleanup Levels (1)					
Total Petroleum Hydrocarbons	--	201	222	1120	183	335
Base Neutral Compounds						
Phthalates						
Diethylphthalate	--	0.180J				
Di-n-Butylphthalate	100	1.88		1.1		
bis(2-Ethylhexyl)Phthalate	210*	2.58	0.36JB	0.30B	0.43B	2.58
Di-n-Octyl Phthalate	100	0.015J		2.08	0.67B	1.48
Tentatively Identified Compounds						
Unknowns	--	0.20J - 55JAB	0.38J - 65JAB	0.40JB-150JAB	0.17J-60JAB	0.4J-67JAB
Unknown Alkenes	--	0.36J - 0.83J	0.83JB-0.94JB	0.36J-1.5JB	1.3J-1.5J	0.74J-0.91J
Unknown Alkenes	--	1.6J - 1.8J		1.4J-3.8J	0.21J	0.55J-7.1J
Unknown Acids	--				0.18J	0.93J
Sulfur	--					0.47J
Unknown Aldehyde	--					1.0J
Unknown Ketones	--		0.210J	0.72J	28J	
Unknown Cyclics and/or Aromatics	--	0.32J-0.92J				

A = Compound is an aldit condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1991)

-- = Not specified by NJDEP

All concentrations reported in ppm

TABLE 2
ESSEX SPECIALTY PRODCUTS, INC.
SAYREVILLE, NEW JERSEY
SEWER DRAIN NO. 11
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Location:	SD11-7 5/22/91 0 - 6 " base	SD11-8 5/22/91 0 - 6 " sidewall	SD11-9 5/22/91 0 - 6 " base	SD11-10 5/22/91 0 - 6 " base
	Cleanup Levels (1)				
Total Petroleum Hydrocarbons	—	271	270	177	520
Base Neutral Compounds					
Phthalates					
Diethylphthalate	—				
Di-n-Butylphthalate	100	2.1B	0.54B	1.8B	1.1B
bis(2-Ethylhexyl)Phthalate	210*	1.3B	2.9B	1.4B	1.1B
Di-n-Octyl Phthalate	100				
Tentatively Identified Compounds					
Unknowns	—	0.28J-52JAB	0.43J-67JAB	0.22J-68JBA	0.19 J - 65JAB
Unknown Alkanes	—	0.99J-1.2JB	0.78J-5.3J	0.75J-0.91J	0.84J-1.1J
Unknown Alkenes	—	0.18JB	0.58J-7.2J	0.28J	0.22J
Unknown Acids	—	0.40J	0.43J		
Sulfur	—	.600J		0.23J	
Unknown Aldehyde	—		0.71J		
Unknown Ketones	—	0.20J			
Unknown Cycles and/or Aromatics	—				0.25J

A = Compound is an alid condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

(1) = NJDEP Proposed Soil Cleanup Standards (February 1982)

* = Site Specific Cleanup Standard (NJDEP letter dated July 26, 1991)

— = Not specified by NJDEP

All concentrations reported in ppm

TABLE 3
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
MAIN EXCAVATION/PAVEMENT AREAS
SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Location:	T-1 7/31/91 3.5 - 4' boring	T-2 7/31/91 3.5 - 4' boring	T-3 7/31/91 3.5 - 4' boring	T-4 7/31/91 4.5 - 5' boring	T-5 7/31/91 4.5 - 5' boring
	Cleanup Levels (1)					
Total Petroleum Hydrocarbons	—	NA	NA	NA	NA	NA
Volatile Organic Compounds						
Toluene	500	0.61	0.003		0.001	0.001
Total Xylenes	10	0.052				
Base Neutral Compounds						
Phthalates						
Bis(2-ethylhexyl)phthalate	100	0.37 J	1.0	2.6	2.3	1.3
Di-n-Butylphthalate	100	4.4	1.0	2.2	2.1	3.1
bis(2-Ethylhexyl)Phthalate	210*	1.0	0.084 J	0.14 J	0.14 J	0.9
Di-n-Octyl Phthalate	100				0.044 J	
Tentatively Identified Compounds						
Unknowns	—	.8J-45JAB	.49J-24JAB	0.18JA-52JAB	.16J-65JAB	.19J-49JAB
Unknown Alkanes	—			.3J		
Unknown Hydrocarbons	—		.4J	.19J-.88J	.18J-.75J	.19J

A = Compound is an alicyclic compound

B = Compound reported was present in method blank

J = Quantitation value is an estimate

NA = Not Analyzed

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 26, 1991)

— = Not specified by NJDEP

All concentrations reported in ppm

TABLE 4
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
SUBAREA B1
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	B1-1 3/19/91 0-6" sidewall	B1-2 3/19/91 0-6" base	B1-3 3/19/91 0-6" sidewall	B1-4 3/19/91 0-6" base	B1-5 3/19/91 0-6" sidewall	B1-6 3/19/91 0-6" base	B1-7 3/19/91 0-6" sidewall	B1-8 3/19/91 0-6" base	B1-9 3/19/91 0-6" sidewall
	Cleanup Levels (1)									
Total Petroleum Hydrocarbons	-	88.6	961	147	491	358	359	671	679	181
Volatiles Organic Compounds		NR		NR	NR	NR	NR			NR
Benzene	1		0.070					0.003	0.028	
Toluene	500		0.008					.001 J	0.043	
Xylene (total)	10		4.3					0.230	7.300	
Base Neutral Compounds		NR		NR	NR	NR	NR			NR
Phthalates										
Di-n-Butylphthalate	100		.640 J					.400 J	.770 J	
Di(2-Ethylhexyl)Phthalate	210*		1800 B					590 B	940 B	
Di-n-Octyl Phthalate	100		13						21	
Polynuclear Aromatic Hydrocarbons										
Naphthalene	100		.100 J						.045 J	
Acenaphthylene	-								.039 J	
Fluorene	100								.110 J	
Phenanthrene	-		.210 J					.190 J	.210 J	
Anthracene	500								.077 J	
Dibenzofuran	-								.079 J	
2-Methylnaphthalene	-		.230 J					.140 J	.290 J	
Other Base Neutrals										
N-Nitrosodiphenylamine	100								.130 J	
Tentatively Identified Compounds										
Unknowns	-		1.6J - 45J					1.1J - 10.0J	1.4J - 17.0J	
Substituted Benzenes	-		1.6J						1.7J	
Substituted Naphthalenes	-							1.6J		

☐ = Compound reported was present in method blank

J = Quantitation value is an estimate

NR = Not Required - TPHC < 500ppm (NJDEP letter Sept. 28, 1990)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1991)

- = Not specified by NJDEP

all concentrations reported in ppm

**TABLE 4
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
SUBAREA B1
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY**

	Sample ID: Sample Date: Sampling Depth: Trench Location:	B1-10 3/19/91 0-6" base	B1-11 3/19/91 0-6" sidewall	B1-12 3/19/91 0-6" base	B1-13 3/19/91 0-6" sidewall	B1-14 3/19/91 0-6" base	B1-15 3/19/91 0-6" sidewall	B1-16 3/19/91 0-6" base	B1-17 3/19/91 0-6" sidewall	B1-18 3/19/91 0-6" base
	Cleanup Levels (1)									
Total Petroleum Hydrocarbons	—	740	286	127	79.9	78.9	136	167	106	406
Volatile Organic Compounds			NR	NR	NR	NR	NR	NR	NR	NR
Benzene	1	0.038								
Toluene	500	0.012								
Xylene (total)	10	5.0								
Base Neutral Compounds			NR	NR	NR	NR	NR	NR	NR	NR
Phthalates										
Di-n-Butylphthalate	100	740 J								
bis(2-Ethylhexyl)Phthalate	210*	1100 B								
Di-n-Octyl Phthalate	100									
Polynuclear Aromatic Hydrocarbons										
Naphthalene	100									
Acenaphthylene	—									
Fluorene	100									
Phenanthrene	—	.130 J								
Anthracene	500									
Dibenzofuran	—									
2-Methylnaphthalene	—	.100 J								
Other Base Neutrals										
N-Nitrosodiphenylamine	100									
Tentatively Identified Compounds										
Unknowns	—	1.2J - 11.0J								
Substituted Benzenes	—	1.3J - 7.5J								
Substituted Naphthalenes	—									

B = Compound reported was present in method blank

J = Quantitation value is an estimate

NR = Not Required - TPHC <500ppm (NJDEP letter Sept. 29, 1989)

(*) = NJDEP Proposed Soil Cleanup Standards (February 1992)

— = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1991)

— = Not specified by NJDEP

ppm = All concentrations reported in ppm

TABLE 5
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ADDITIONAL EXCAVATION
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	AE-1 4/23/91 0-6" sidewall	AE-2 4/23/91 0-6" base	AE-3 4/24/91 0-6" sidewall	AE-4 4/24/91 0-6" base	AE-5 4/24/91 0-6" sidewall
	Cleanup Levels (1)					
Total Petroleum Hydrocarbons	-	576	789	6760	5690	737
Volatile Organic Compounds						
Toluene	500	0.0027	0.003			
Xylene (total)	10	0.0016				
Base Neutral Compounds						
Phthalates						
Di-n-Butylphthalate	100	0.110 J	0.120 J	1.30 J	0.790 J	0.180 J
bis(2-Ethylhexyl)Phthalate	210*	0.660 B	1.40 B	3.60 JB	6.40 B	320 B
Di-n-Octyl Phthalate	100					2.90
Polynuclear Aromatic Hydrocarbons						
Pyrene	500			0.120 J		
Other Base Neutrals						
N-Nitrosodiphenylamine	100	0.450 JB	0.110 JB	1.60 JB	0.470 JB	0.036 JB
Tentatively Identified Compounds						
Unknowns	-	0.25 J - 28.0 JAB	0.40 J - 22.0 JAB	6.4 J - 200 JAB	2.7 J - 160 JAB	0.34 J - 33 JAB
Unknown Alkanes	-	0.29 J - 2.6 J		16.0 J - 17.0 J	3.70 J	
Unknown Alkenes	-					
Unknown Hydrocarbons	-		0.37 J			
Unknown Phthalates	-					0.44 J - 27.0 J
Substituted Benzenes	-	0.26 J - 0.64 J			12.0 J	
Substituted PAHs	-	0.33 J - 0.62 J				

A = Compound is an alditol condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

ND = Not Detected

NR = Not Required - TPHC <500 (NJDEP letter Sept. 28, 1992)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1994)

- = Not specified by NJDEP

JB = Nitrobenzenes reported in ppm

42

TABLE 8
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ADDITIONAL EXCAVATION
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	AE-6 4/24/91 0-6" base	AE-7 4/24/91 0-6" sidewall	AE-8 4/24/91 0-6" base	AE-9 4/24/91 0-6" sidewall	AE-10 4/24/91 0-6" base
	Cleanup Levels (1)					
Total Petroleum Hydrocarbons	--	870	803	926	549	801
Volatile Organic Compounds						
Toluene	500					
Xylene (total)	10			0.004		
Base Neutral Compounds						
Phthalates						
Di-n-Butylphthalate	100	0.130 J	0.160 J	0.250 J	0.340 J	0.140 J
Di(2-Ethylhexyl)Phthalate	210*	39.0 B	130 B	960 B	3.6 B	5.9 B
Di-n-Octyl Phthalate	100	0.92	0.280 J	3.6		
Polynuclear Aromatic Hydrocarbons						
Pyrene	500					
Other Base Neutrals						
N-Nitrosodiphenylamine	100	0.073 JB	0.032 JB	0.150 JB	0.047 JB	0.043 JB
Tentatively Identified Compounds						
Unknowns	--	0.39 J - 28 JAB	0.22 J - 34 JAB	0.53 J - 42 JAB	0.16 J - 35 JAB	0.21 J - 37 JAB
Unknown Alkanes	--		1.30 J	0.57 J - 9.3 J		
Unknown Alkenes	--					
Unknown Hydrocarbons	--					
Unknown Phthalates	--	0.60 J - 4.6 J	0.35 J - 2.1 J	1.5 J - 48 J		0.22 J
Substituted Benzenes	--					
Substituted PAHs	--					

A = Compound is an alid condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

ND = Not Detected

NR = Not Required - WPAZ - 688 (NJDEP letter Sept. 28, 1993)

q = NJDEP Proposed Soil Cleanup Standards (February 1992)

qs = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1991)

--- = Not specified by NJDEP

All concentrations reported in ppm

TABLE 8
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ADDITIONAL EXCAVATION
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	AE-11 4/24/91 0-6" sidewall	AE-12 4/24/91 0-6" base	AE-13 4/24/91 0-6" sidewall	AE-14 4/24/91 0-6" base	AE-15 4/29/91 0-6" sidewall	AE-16 4/29/91 0-6" base
Total Petroleum Hydrocarbons	Cleanup Levels (1)						
	-	560	612	1010	1070	ND	ND
Volatile Organic Compounds							
Toluene	500		0.0023			NR	NR
Xylene (total)	10	0.20	0.150	0.0047	1.500		
					0.130		
Base Neutral Compounds							
Phthalates							
Di-n-Butylphthalate	100	0.740	5.3	3.9	37.0	NR	NR
Di-2-Ethylhexylphthalate	210*	1.40 B	5.1 B	49.0 B	360 B		
Di-n-Octyl Phthalate	100		0.320 J	0.220 J	2.0		
Polynuclear Aromatic Hydrocarbons							
Pyrene	500						
Other Base Neutrals							
N-Nitrosodiphenylamine	100	0.056 JB	0.052 JB	0.078 JB	0.069 B		
Tentatively Identified Compounds							
Unknowns	-	0.16 J - 86 JAB	0.190 J - 40 JAB	0.36 J - 36 JAB	0.34 J - 36.0 JAB		
Unknown Alkanes	-	0.26 J					
Unknown Alkanes	-	3.5 J					
Unknown Hydrocarbons	-						
Unknown Phthalates	-						
Substituted Benzenes	-		0.250 J	1.0 J	0.54 J - 14.0 J		
Substituted PAHs	-	0.16 J					

A = Compound is an alditol condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

ND = Not Detected

NR = Not Reported - TPHC <800 (NJDEP letter Sept. 28, 1989)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1994)

--- = Not specified by NJDEP

--- = Concentration reported in ppm

TABLE 6
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ADDITIONAL EXCAVATION
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	AE-17 4/29/91 0-6" sidewall	AE-18 4/29/91 0-6" base	AE-19 4/29/91 0-6" base	AE-20 4/29/91 0-6" base	AE-21 5/8/91 0-6" sidewall	AE-22 5/8/91 0-6" base	AE-23 5/8/91 0-6" sidewall
	Cleanup Levels (1)							
Total Petroleum Hydrocarbons	—	1440	ND	ND	802	330	338	349
Volatile Organic Compounds			NR	NR		NR	NR	NR
Toluene	500	0.120			76.00			
Xylene (total)	10	3.200			8.80			
Base Neutral Compounds			NR	NR		NR	NR	NR
Phthalates					5.1			
Di-n-Butylphthalate	100	4.1			630.0 F			
bis(2-Ethylhexyl)Phthalate	210*	2.90 B			0.95			
Di-n-Octyl Phthalate	100							
Polynuclear Aromatic Hydrocarbons								
Pyrene	500							
Other Base Neutrals								
N-Nitrosodiphenylamine	100							
Tentatively Identified Compounds								
Unknowns	—	11 J - 12 J			1.6 J - 17 JAB			
Unknown Alkanes	—	3.7 J - 15 J			1.4 J - 3.9 J			
Unknown Alkenes	—							
Unknown Hydrocarbons	—				13.0 J			
Unknown Phthalates	—				1.6 J			
Substituted Benzenes	—							
Substituted PAHs	—							

A = Compound is an aldol condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

ND = Not Detected

NR = Not Required - TPHC < 800 (NJDEP letter Sept. 20, 1990)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1991)

— = Not specified by NJDEP

— = Concentrations reported in ppm

**TABLE 6
ESSEX SPECIALTY PRODUCTS, INC.
BAYREVILLE, NEW JERSEY
ADDITIONAL EXCAVATION
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY**

	Sample ID: Sample Date: Sampling Depth: Trench Location:	AE-24 5/8/91 0-6" base	AE-25 5/8/91 0-6" sidewall	AE-26 5/8/91 0-6" base	AE-27 5/14/91 0-6" sidewall	AE-28 5/14/91 0-6" base	AE-29 5/14/91 0-6" sidewall	AE-30 5/14/91 0-6" base	AE-31 5/14/91 0-6" sidewall
	Cleanup Levels (1)								
Total Petroleum Hydrocarbons	-	378	399	414	197	249	283	224	188
Volatile Organic Compounds		NR	NR	NR	NR	NR	NR	NR	NR
Toluene	500								
Xylene (total)	10								
Base Neutral Compounds		NR	NR	NR	NR	NR	NR	NR	NR
Phthalates									
Di-n-Butylphthalate	100								
bis(2-Ethylhexyl)Phthalate	210*								
Di-n-Octyl Phthalate	100								
Polynuclear Aromatic Hydrocarbons									
Pyrene	500								
Other Base Neutrals									
N-Nitrosodiphenylamine	100								
Tentatively Identified Compounds									
Unknowns	-								
Unknown Alkanes	-								
Unknown Alkenes	-								
Unknown Hydrocarbons	-								
Unknown Phthalates	-								
Substituted Benzenes	-								
Substituted PAHs	-								

A = Compound is an acid condensate

B = Compound reported as present in method blank

J = Quantitation value is an estimate

ND = Not Detected

NR = Not Required - TPHC (SIS (NJDEP letter Sept. 28, 1989)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1991)

- = Not specified by NJDEP

- = concentrations reported in ppm

TABLE 8
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ADDITIONAL EXCAVATION
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	AE-32 5/14/91 0-6" base	AE-33 5/14/91 0-6" sidewall	AE-34 5/14/91 0-6" base	AE-35 5/14/91 0-6" sidewall	AE-36 5/14/91 0-6" base
	Cleanup Levels (1)					
Total Petroleum Hydrocarbons	-	225	158	192	207	189
Volatile Organic Compounds		NR	NR	NR	NR	NR
Toluene	500					
Xylene (total)	10					
Base Neutral Compounds		NR	NR	NR	NR	NR
Phthalates						
Di-n-Butylphthalate	100					
bis(2-Ethylhexyl)Phthalate	210*					
Di-n-Octyl Phthalate	100					
Polynuclear Aromatic Hydrocarbons						
Pyrene	500					
Other Base Neutrals						
N-Nitrosodiphenylamine	100					
Tentatively Identified Compounds						
Unknowns	-					
Unknown Alkanes	-					
Unknown Alkenes	-					
Unknown Hydrocarbons	-					
Unknown Phthalates	-					
Substituted Benzenes	-					
Substituted PAHs	-					

A = Compound is an atoll condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

ND = Not Detected

NR = Not Required - TPHC < 500 (NJDEP letter Sept. 20, 1990)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1991)

- = Not specified by NJDEP

All concentrations reported in ppm

TABLE 6
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
SUBAREA B2
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	B2-1 3/13/91 0-6" sidewall	B2-2 3/13/91 0-6" base	B2-3 3/13/91 0-6" sidewall	B2-4 3/13/91 0-6" base	B2-5 3/14/91 0-6" sidewall	B2-6 3/14/91 0-6" base	B2-7 3/14/91 0-6" sidewall	B2-8 3/14/91 0-6" base	B2-9 3/14/91 0-6" base
	Cleanup Levels (1)									
Total Petroleum Hydrocarbons	--	1090	636	1040	924	188	155	337	<10.0	41.8
Volatile Organic Compounds						NR	NR	NR	NR	NR
Base Neutral Compounds						NR	NR	NR	NR	NR
Phthalates										
Di-n-Butylphthalate	100	1.20	4.60	8.00	9.80					
bis(2-Ethylhexyl)Phthalate	210*	1400	1100	17.0	9.90					
Di-n-Octyl Phthalate	100	22.0	4.00	0.068						
Polynuclear Aromatic Hydrocarbons										
Phenanthrene	--		0.064J	0.500 J						
Fluoranthene			0.085J	0.920 J						
Pyrene				0.710 J						
Tentatively Identified Compounds										
Unknowns	--	0.51J - 2.8J	0.68J - 6.7J	2.9J - 25.0J	15J - 9.5J					
Substituted Benzenes	--	0.630J	4.4J	22.0J	3.1					

J = Quantitation value is an estimate

NR = Not Required - TPHC <800ppm (NJDEP letter Sept. 20, 1990)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1991)

-- = Not specified by NJDEP

All concentrations reported in ppm

TABLE 6
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
SUBAREA B2
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	B2-10 3/14/91 0-6" base	B2-11 3/14/91 0-6" base	B2-12 3/14/91 0-6" base	B2-13 3/14/91 0-6" sidewall	B2-14 3/14/91 0-6" base	B2-15 3/14/91 0-6" sidewall	B2-16 3/14/91 0-6" base	B2-17 3/14/91 0-6" base
	Cleanup Levels (1)								
Total Petroleum Hydrocarbons	—	181	201	101	139	18.3	61.9	110	244
Volatile Organic Compounds		NR	NR	NR	NR	NR	NR	NR	NR
Base Neutral Compounds		NR	NR	NR	NR	NR	NR	NR	NR
Phthalates									
Di-n-Butylphthalate	100								
bis(2-Ethylhexyl)Phthalate	210*								
Di-n-Octyl Phthalate	100								
Polynuclear Aromatic Hydrocarbons									
Phenanthrene	—								
Fluoranthene									
Pyrene									
Tentatively Identified Compounds									
Unknowns	—								
Substituted Benzenes	—								

J = Quantitation value is an estimate

NR = Not Required - TPHC <500ppm (NJDEP letter Sept. 20, 1990)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1991)

— = Not specified by NJDEP

All concentrations reported in ppm

TABLE 7
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
SUBAREA B3
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	B3-1 3/18/91 0-6" base	B3-2 3/18/91 0-6" sidewall	B3-3 3/18/91 0-6" base	B3-4 3/18/91 0-6" base	B3-5 3/18/91 0-6" base	B3-6 3/18/91 0-6" sidewall	B3-7 3/18/91 0-6" base	B3-8 3/18/91 0-6" base
	Cleanup Levels (1)								
Total Petroleum Hydrocarbons	-	36.9	22.8	31	174	<10	39.9	34.9	51.4
Volatile Organic Compounds		NR	NR	NR	NR	NR	NR	NR	NR
Base Neutral Compounds		NR	NR	NR	NR	NR	NR	NR	NR

NR = Not Required - TPHC <600ppm (NJDEP letter Sept. 20, 1990)
 (1) = NJDEP Proposed Soil Cleanup Standards (February 1992)
 * = Site Specific Cleanup Standard (NJDEP letter dated July 26, 1991)
 -- = Not specified by NJDEP
 All concentrations reported in ppm

TABLE 7
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
SUBAREA B3
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	B3-9 3/18/91 0-6" base	B3-10 3/18/91 0-6" sidewall	B3-11 3/18/91 0-6" base	B3-12 3/18/91 0-6" sidewall	B3-13 3/18/91 0-6" base	B3-14 3/18/91 0-6" sidewall	B3-15 3/18/91 0-6" base
Total Petroleum Hydrocarbons	Cleanup Levels (1)							
		140	214	430	314	62.9	115	109
Volatile Organic Compounds		NR	NR	NR	NR	NR	NR	NR
Base Neutral Compounds		NR	NR	NR	NR	NR	NR	NR

NR = Not Required - TPHC <800ppm (NJDEP letter Sept. 20, 1990)
 (1) = NJDEP Proposed Soil Cleanup Standards (February 1992)
 * = Site Specific Cleanup Standard (NJDEP letter dated July 26, 1991)
 -- = Not specified by NJDEP
 All concentrations reported in ppm

TABLE 8
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ABANDONED PIPE AREA
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	AP-1 3/14/91 (aqueous)	AP-2 3/18/91	AP-3 3/18/91	AP-4 4/18/91 0-6" sidewall
	Cleanup Levels (1)				
Total Petroleum Hydrocarbons	—	144	760	5250	1930
Volatile Organic Compounds					
Benzene	1		0.001		
Toluene	500		0.49	0.001	
Xylene (total)	10		4.7	0.036	
Base Neutral Compounds					
Phthalates					
Di-n-Butylphthalate	100				0.420 JB
bis(2-Ethylhexyl)Phthalate	210*	0.520 B	1300 B	4000 B	430,000 B
Di-n-Octyl Phthalate	100		71	44	1,600
Polynuclear Aromatic Hydrocarbons					
Naphthalene	100		0.057 J		
Acenaphthene	100		0.078 J		
Fluorene	100		0.2 J		
Phenanthrene	—		0.32 J		
Anthracene	500				
Fluoranthene	500				
Pyrene	500				
2-Methylnaphthalene	—		0.48		
Other Base Neutrals					
N-Nitrosodiphenylamine	100				0.053 JB
Tentatively Identified Compounds					
Unknowns	—	0.13 J - 0.53 J	3.8 JA - 4.8 J	1.3 J - 4.3 JA	0.37 J - 16 J
Unknown Alkanes	—	0.13 J - 0.37 J	2.8 J - 5.9 J	1.8J	
Unknown Alkenes	—				2,000 J
Unknown Hydrocarbons	—				
Unknown Phthalates	—		2.9 J - 11.0 J	5.4 J - 74.0 J	0.59 J - 4.7 J
Unknown Cyclics and/or Aromatics	—				
Substituted Benzenes	—		3.4 J - 4.4 J		
Substituted Naphthalenes	—				

A = Compound is an aldol condensate.

B = Compound reported was present in method blank

J = Quantitation value is an estimate

NR = Not Detected

NR = Not Required - TPHC < 300 ppm (NJDEP letter Sept. 30, 1990)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1993)

— = Not specified by NJDEP

all concentrations reported in ppm

34

TABLE 8
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ABANDONED PIPE AREA
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	AP-5 4/18/91 0-6" base	AP-6 4/18/91 0-6" sidewall	AP-7 4/18/91 0-6" base	AP-8 4/18/91 0-6" sidewall
	Cleanup Levels (1)				
Total Petroleum Hydrocarbons	—	1880	2250	2250	2090
Volatile Organic Compounds					
Benzene	1				
Toluene	500				
Xylene (total)	10			8,000	1000.00C
				12,000	170,000
Base Neutral Compounds					
Phthalates					
Di-n-Butylphthalate	100	1,100 JB	2,900 B	0.490 JB	4,800 B
bis(2-Ethylhexyl)Phthalate	210*	47,000 B	230,000 B	620,000 B	2300,000 B
Di-n-Octyl Phthalate	100	1,600	0.840	9,700	38,000
Polynuclear Aromatic Hydrocarbons					
Naphthalene	100				
Acenaphthene	100				0.080 J
Fluorene	100				0.076 J
Phenanthrene	—			0.040 J	0.260 J
Anthracene	500			0.058 J	0.330 J
Fluoranthene	500			0.019 J	0.087 J
Pyrene	500				0.031 J
2-Methylnaphthalene	—			0.030 J	0.120 J
Other Base Neutrals					
N-Nitrosodiphenylamine	100	0.065 JB	0.030 JB		
Tentatively Identified Compounds					
Unknowns	—				
Unknown Alkanes	—	0.82 J - 28 JAB	0.23 J - 28 JAB	1.1 J - 23 JAB	1.7 J - 14 JAB
Unknown Alkenes	—				2,000 J
Unknown Hydrocarbons	—				
Unknown Phthalates	—	2.2 J - 6.7 J	3,600 J	2,600 J	
Unknown Cycloes and/or Aromatics	—			1.6 J - 4.7 J	1.5 J - 45.0 J
Substituted Benzenes	—				
Substituted Naphthalenes	—			1.1 J - 7.4 J	2.4 J - 7.9 J

A = Compound is an aroclor condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

ND = Not Detected

Method: EPA 8210-1, 8210-2, 8210-3, 8210-4, 8210-5, 8210-6, 8210-7, 8210-8, 8210-9, 8210-10, 8210-11, 8210-12, 8210-13, 8210-14, 8210-15, 8210-16, 8210-17, 8210-18, 8210-19, 8210-20, 8210-21, 8210-22, 8210-23, 8210-24, 8210-25, 8210-26, 8210-27, 8210-28, 8210-29, 8210-30, 8210-31, 8210-32, 8210-33, 8210-34, 8210-35, 8210-36, 8210-37, 8210-38, 8210-39, 8210-40, 8210-41, 8210-42, 8210-43, 8210-44, 8210-45, 8210-46, 8210-47, 8210-48, 8210-49, 8210-50, 8210-51, 8210-52, 8210-53, 8210-54, 8210-55, 8210-56, 8210-57, 8210-58, 8210-59, 8210-60, 8210-61, 8210-62, 8210-63, 8210-64, 8210-65, 8210-66, 8210-67, 8210-68, 8210-69, 8210-70, 8210-71, 8210-72, 8210-73, 8210-74, 8210-75, 8210-76, 8210-77, 8210-78, 8210-79, 8210-80, 8210-81, 8210-82, 8210-83, 8210-84, 8210-85, 8210-86, 8210-87, 8210-88, 8210-89, 8210-90, 8210-91, 8210-92, 8210-93, 8210-94, 8210-95, 8210-96, 8210-97, 8210-98, 8210-99, 8210-100

Method: EPA 8210-1, 8210-2, 8210-3, 8210-4, 8210-5, 8210-6, 8210-7, 8210-8, 8210-9, 8210-10, 8210-11, 8210-12, 8210-13, 8210-14, 8210-15, 8210-16, 8210-17, 8210-18, 8210-19, 8210-20, 8210-21, 8210-22, 8210-23, 8210-24, 8210-25, 8210-26, 8210-27, 8210-28, 8210-29, 8210-30, 8210-31, 8210-32, 8210-33, 8210-34, 8210-35, 8210-36, 8210-37, 8210-38, 8210-39, 8210-40, 8210-41, 8210-42, 8210-43, 8210-44, 8210-45, 8210-46, 8210-47, 8210-48, 8210-49, 8210-50, 8210-51, 8210-52, 8210-53, 8210-54, 8210-55, 8210-56, 8210-57, 8210-58, 8210-59, 8210-60, 8210-61, 8210-62, 8210-63, 8210-64, 8210-65, 8210-66, 8210-67, 8210-68, 8210-69, 8210-70, 8210-71, 8210-72, 8210-73, 8210-74, 8210-75, 8210-76, 8210-77, 8210-78, 8210-79, 8210-80, 8210-81, 8210-82, 8210-83, 8210-84, 8210-85, 8210-86, 8210-87, 8210-88, 8210-89, 8210-90, 8210-91, 8210-92, 8210-93, 8210-94, 8210-95, 8210-96, 8210-97, 8210-98, 8210-99, 8210-100

Method: EPA 8210-1, 8210-2, 8210-3, 8210-4, 8210-5, 8210-6, 8210-7, 8210-8, 8210-9, 8210-10, 8210-11, 8210-12, 8210-13, 8210-14, 8210-15, 8210-16, 8210-17, 8210-18, 8210-19, 8210-20, 8210-21, 8210-22, 8210-23, 8210-24, 8210-25, 8210-26, 8210-27, 8210-28, 8210-29, 8210-30, 8210-31, 8210-32, 8210-33, 8210-34, 8210-35, 8210-36, 8210-37, 8210-38, 8210-39, 8210-40, 8210-41, 8210-42, 8210-43, 8210-44, 8210-45, 8210-46, 8210-47, 8210-48, 8210-49, 8210-50, 8210-51, 8210-52, 8210-53, 8210-54, 8210-55, 8210-56, 8210-57, 8210-58, 8210-59, 8210-60, 8210-61, 8210-62, 8210-63, 8210-64, 8210-65, 8210-66, 8210-67, 8210-68, 8210-69, 8210-70, 8210-71, 8210-72, 8210-73, 8210-74, 8210-75, 8210-76, 8210-77, 8210-78, 8210-79, 8210-80, 8210-81, 8210-82, 8210-83, 8210-84, 8210-85, 8210-86, 8210-87, 8210-88, 8210-89, 8210-90, 8210-91, 8210-92, 8210-93, 8210-94, 8210-95, 8210-96, 8210-97, 8210-98, 8210-99, 8210-100

Method: EPA 8210-1, 8210-2, 8210-3, 8210-4, 8210-5, 8210-6, 8210-7, 8210-8, 8210-9, 8210-10, 8210-11, 8210-12, 8210-13, 8210-14, 8210-15, 8210-16, 8210-17, 8210-18, 8210-19, 8210-20, 8210-21, 8210-22, 8210-23, 8210-24, 8210-25, 8210-26, 8210-27, 8210-28, 8210-29, 8210-30, 8210-31, 8210-32, 8210-33, 8210-34, 8210-35, 8210-36, 8210-37, 8210-38, 8210-39, 8210-40, 8210-41, 8210-42, 8210-43, 8210-44, 8210-45, 8210-46, 8210-47, 8210-48, 8210-49, 8210-50, 8210-51, 8210-52, 8210-53, 8210-54, 8210-55, 8210-56, 8210-57, 8210-58, 8210-59, 8210-60, 8210-61, 8210-62, 8210-63, 8210-64, 8210-65, 8210-66, 8210-67, 8210-68, 8210-69, 8210-70, 8210-71, 8210-72, 8210-73, 8210-74, 8210-75, 8210-76, 8210-77, 8210-78, 8210-79, 8210-80, 8210-81, 8210-82, 8210-83, 8210-84, 8210-85, 8210-86, 8210-87, 8210-88, 8210-89, 8210-90, 8210-91, 8210-92, 8210-93, 8210-94, 8210-95, 8210-96, 8210-97, 8210-98, 8210-99, 8210-100

Method: EPA 8210-1, 8210-2, 8210-3, 8210-4, 8210-5, 8210-6, 8210-7, 8210-8, 8210-9, 8210-10, 8210-11, 8210-12, 8210-13, 8210-14, 8210-15, 8210-16, 8210-17, 8210-18, 8210-19, 8210-20, 8210-21, 8210-22, 8210-23, 8210-24, 8210-25, 8210-26, 8210-27, 8210-28, 8210-29, 8210-30, 8210-31, 8210-32, 8210-33, 8210-34, 8210-35, 8210-36, 8210-37, 8210-38, 8210-39, 8210-40, 8210-41, 8210-42, 8210-43, 8210-44, 8210-45, 8210-46, 8210-47, 8210-48, 8210-49, 8210-50, 8210-51, 8210-52, 8210-53, 8210-54, 8210-55, 8210-56, 8210-57, 8210-58, 8210-59, 8210-60, 8210-61, 8210-62, 8210-63, 8210-64, 8210-65, 8210-66, 8210-67, 8210-68, 8210-69, 8210-70, 8210-71, 8210-72, 8210-73, 8210-74, 8210-75, 8210-76, 8210-77, 8210-78, 8210-79, 8210-80, 8210-81, 8210-82, 8210-83, 8210-84, 8210-85, 8210-86, 8210-87, 8210-88, 8210-89, 8210-90, 8210-91, 8210-92, 8210-93, 8210-94, 8210-95, 8210-96, 8210-97, 8210-98, 8210-99, 8210-100

TABLE 8
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ABANDONED PIPE AREA
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	AP-9 4/16/91 0-6" base	AP-10 4/16/91 0-6" base	AP-11 4/16/91 0-6" base	AP-12 4/16/91 0-6" base
	Cleanup Levels (1)				
Total Petroleum Hydrocarbons	—	2270	2370	2460	2460
Volatile Organic Compounds					
Benzene	1				
Toluene	500	6,500		9,000	4,500
Xylene (total)	10	35,000	11,000	95,000	34,000
Base Neutral Compounds					
Phthalates					
Di-n-Butylphthalate	100	3,100 B	0.630 JB	0.700 JB	1,500 B
bis(2-Ethylhexyl)Phthalate	210*	1500,000 B	2000,000 B	2,200,000 B	2700,000 B
Di-n-Octyl Phthalate	100	10,000	11,000	17,000	23,000
Polynuclear Aromatic Hydrocarbons					
Naphthalene	100				
Acenaphthene	100				
Fluorene	100	0.100 J	0.077 J	0.097 J	0.056 J
Phenanthrene	—	0.170 J	0.120 J	0.150 J	0.089 J
Anthracene	500	0.051 J	0.040 J		0.031 J
Fluoranthene	500	0.057 J	0.029 J		
Pyrene	500	0.150 J		0.140 J	
2-Methylnaphthalene	—				
Other Base Neutrals					
N-Nitrosodiphenylamine	100				
Tentatively Identified Compounds					
Unknowns	—	1.4 J - 32 JAB	0.8 JB - 34 JAB	2.1 J - 37 JAB	0.97 J - 31 JAB
Unknown Alkanes	—		0.970 J	2.5 J - 4.5 J	0.880 J
Unknown Alkenes	—				
Unknown Hydrocarbons	—	2,200 J			
Unknown Phthalates	—	1.5 J - 9.2 J	0.85 J - 2.4 J	2.8 J - 35.0 J	1.4 J - 3.1 J
Unknown Cyclo and/or Aromatics	—				
Substituted Benzenes	—	1,200 J		3.9 J - 13.0 J	1.8 J - 2.1 J
Substituted Naphthalenes	—				2,100 J

A = Compound is an alkyl condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

ND = Not Detected

NR = Not Required - TPHC < 600ppm (NJDEP Interim Reg. 30, 1990)

(*) = NJDEP Proposed Soil Cleanup Standards (February 1992)

— = Not specified by NJDEP

— = Not specified by NJDEP

36

TABLE 8
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ABANDONED PIPE AREA
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	AP-13 4/17/91 0-6" sidewall	AP-14 4/17/91 0-6" base	AP-15 4/17/91 0-6" sidewall	AP-16 4/17/91 0-6" base	AP-17 4/28/91 0-6" sidewall
	Cleanup Levels (1)					
Total Petroleum Hydrocarbons	—	2010	2200	1970	2260	ND
Volatile Organic Compounds						NR
Benzene	1					
Toluene	500		0.004		2.100	
Xylene (total)	10	0.022	0.110		0.750	
Base Neutral Compounds						NR
Phthalates						
Di-n-Butylphthalate	100	0.270 JB	0.140 JB		1.40 B	
bis(2-Ethylhexyl)Phthalate	210*	820 B	66.0 B	1.80 B	480 B	
Di-n-Octyl Phthalate	100	23.0	1.0	4.4	5.2	
Polynuclear Aromatic Hydrocarbons						
Naphthalene	100					
Acenaphthene	100					
Fluorene	100					
Phenanthrene	—					
Anthracene	500					
Fluoranthene	500					
Pyrene	500					
2-Methylnaphthalene	—					
Other Base Neutrals						
N-Nitrosodiphenylamine	100					
Tentatively Identified Compounds						
Unknowns	—	0.78 J - 62 JA	0.31 J - 32JA	0.20 J - 37 JA	0.21 J - 42 JA	
Unknown Alkanes	—	0.82 J - 1.20 J		0.230 J	0.370 J	
Unknown Alkenes	—					
Unknown Hydrocarbons	—					
Unknown Phthalates	—	0.650 J - 68.0 J	0.410 J - 3.5 J	0.18 J - 10.0 J	0.34 J - 6.4 J	
Unknown Cycloalkanes and/or Aromatics	—			0.160 J	0.33 J	
Substituted Benzenes	—				1.10 J	
Substituted Naphthalenes	—					

A = Compound is an alicyclic condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

ND = Not Detected

NR = Not Required - WAC <50ppm (NJDEP letter Sept. 30, 1993)

(*) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1991)

— = Not specified by NJDEP

All concentrations reported in ppm

37

TABLE 8
ESSEX SPECIALTY PRODUCTS, INC.
BAYVILLE, NEW JERSEY
ABANDONED PIPE AREA
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	AP-18 4/29/91 0-6" base	AP-19 4/29/91 0-6" sidewall	AP-20 4/29/91 0-6" base	AP-21 5/1/91 0-6" sidewall	AP-22 5/1/91 0-6" base	AP-23 5/1/91 0-6" sidewall	AP-24 5/1/91 0-6" base
	Cleanup Levels (1)							
Total Petroleum Hydrocarbons	--	ND	ND	ND	312	598	355	438
Volatile Organic Compounds		NR	NR	NR	NR		NR	NR
Benzene	1							
Toluene	500							
Xylene (total)	10							
Base Neutral Compounds						5.7		
Phthalates		NR	NR	NR	NR		NR	NR
Di-n-Butylphthalate	100							
Di-(2-Ethylhexyl)Phthalate	210*					0.180 JB		
Di-n-Octyl Phthalate	100					2500 B		
Polynuclear Aromatic Hydrocarbons						38		
Naphthalene	100							
Acenaphthene	100					0.037 J		
Fluorene	100							
Phenanthrene	--					0.190 J		
Anthracene	500					0.39		
Fluoranthene	500					0.120 J		
Pyrene	500							
2-Methylnaphthalene	--							
Other Base Neutrals								
N-Nitrosodiphenylamine	100							
Tentatively Identified Compounds								
Unknowns	--							
Unknown Alkanes	--					1.3 J - 25 JAB		
Unknown Alkenes	--					1.2 J - 3.3 J		
Unknown Hydrocarbons	--							
Unknown Phthalates	--							
Unknown Cyclics and/or Aromatics	--					1.9 J		
Substituted Benzenes	--					1.1 J		
Substituted Naphthalenes	--					2.0 J - 4.3 J		

A = Compound is an acid condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

ND = Not Detected

NR = Not Required - TPHC <500ppm (NJDEP letter Sept. 28, 1992)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1991)

-- = Not specified by NJDEP

All concentrations reported in ppm

TABLE 9
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
SUBAREA D
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	D-1 3/19/91 0-6" base	D-2 3/19/91 0-6" sidewall	D-3 3/19/91 0-6" base	D-4 3/19/91 0-6" sidewall	D-5 3/19/91 0-6" base
	Cleanup Levels (1)					
Total Petroleum Hydrocarbons	—	50	66.5	67.4	67.6	120
Volatile Organic Compounds		NR	NR	NR	NR	NR
Base Neutral Compounds		NR	NR	NR	NR	NR

NR = Not Required - TPHC < 500ppm (NJDEP letter Sept. 20, 1990)
 (1) = NJDEP Proposed Soil Cleanup Standards (February 1992)
 * = Site Specific Cleanup Standard (NJDEP letter dated July 26, 1991)
 — = Not specified by NJDEP
 All concentrations reported in ppm

TABLE 10
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
OIL/WATER SEPARATOR AREA
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	OW - 1 4/23/91 0-6" sidewall	OW - 2 4/23/91 0-6" base	OW - 3 4/23/91 0-6" sidewall	OW - 4 4/23/91 0-6" base	OW - 5 4/23/91 0-6" sidewall	OW - 6 4/23/91 0-6" base	OW - 7 8/8/91 0 - 6" sidewall
	Cleanup Levels (1)							
Total Petroleum Hydrocarbons	-	729	805	785	737	758	938	435
Volatile Organic Compounds								
Benzene	1							NR
Toluene	500							
Xylene (total)	10	0.750		1.50	1.16	1.70	0.90	
Base Neutral Compounds								
Phthalates								
Di-n-Butylphthalate	100	0.250 J	0.410 J	0.280 J	1.400	0.270 J	0.450 J	1.5
bis(2-Ethylhexyl)Phthalate	210*	1100 B	1300 B	870 B	1300 B	880 B	2100 B	480.0
Di-n-Octyl Phthalate	100	11.0	10.0	9.3	10.0	10.0	14.0	7.6
Butylbenzylphthalate	100							
Polynuclear Aromatic Hydrocarbons								
Naphthalene	100							
Fluorene	100	0.130 J	0.100 J	0.120 J	0.110 J	0.160 J	0.190 J	
Phenanthrene	-	0.350 J	0.200 J	0.210 J	0.170 J	0.270 J	0.500 J	0.029 J
Anthracene	500	0.058 J	0.047 J	0.055 J	0.050 J	0.089 J	0.150 J	0.011 J
Fluoranthene	500	0.110 J	0.052 J	0.058 J	0.037 J	0.079 J	0.140 J	0.018 J
Pyrene	500	1.200	0.390 J	0.470	0.310 J	0.430 J	2.600	0.069 J
2-Methylnaphthalene	-							0.01
Acenaphthene	100							
Chrysene	500							
Benzo(a)anthracene	500							
Other Base Neutrals								
N-Nitrosodiphenylamine	-							
Dibenzofuran	-							

A = Compound is an aldit condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

NR = Not Required - TPHC <500ppm (NJDEP letter Sept. 20, 1988)

(*) = NJDEP Proposed Soil Cleanup Standards (February 1992)

(*) = Specific Cleanup Standard (NJDEP letter dated July 28, 1989)

(*) = As specified by NJDEP

(*) = All concentrations reported in ppm

TABLE 10
ESSEX SPECIALTY PRODUCTS, INC.
BAYVILLE, NEW JERSEY
OIL/WATER SEPARATOR AREA
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	OW - 1 4/23/91 0-6" sidewall	OW - 2 4/23/91 0-6" base	OW - 3 4/23/91 0-6" sidewall	OW - 4 4/23/91 0-6" base	OW - 5 4/23/91 0-6" sidewall	OW - 6 4/23/91 0-6" base	OW - 7 8/8/91 0-6" sidewall
	Cleanup Levels (1)							
Tentatively Identified Compounds								
Unknowns	--	0.910 J - 110 JAB	0.51 - 58 JAB	0.90 J - 98 JAB	0.76 J - 100 JAB	0.75 - 38.0 JAB	1.2 J - 42.0 JAB	1.1J-4E
Unknown Alkanes	--	0.670 J - 1.20 J	1.00 J	0.78 J - 1.20 J	0.70 J - 0.99 J	0.97 J - 1.40 J	2.4 J - 2.8 J	0.51J-1.9J
Unknown Acids	--							
Unknown Hydrocarbons	--							
Unknown Ketones	--	1.40 J						60J-2.1J
Unknown Phthalates	--	1.30 J - 3.20 J	1.30 J - 3.0 J	1.0 J - 3.7 J	0.62 J - 1.40 J	2.10 J - 8.0 J	9.9 J - 11.0 J	
Unknown Phenol	--							
Unknown Cyclics and/or Aromatics	--		2.70 J					
Propylbenzene	--							59J-73J
Substituted Benzenes	--							
Substituted PAHs	--							22J

A = Compound is an alditol condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

NR = Not Reported - TPHC <300ppm (NJDEP letter Sept. 20, 1990)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1991)

-- = Not specified by NJDEP

All concentrations reported in ppm

TABLE 10
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
OIL/WATER SEPARATOR AREA
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

ANALYTICAL RESULTS SUMMARY											
	Sample ID: Sample Date: Sampling Depth: Trench Location:	OW-8 8/8/91 0 - 6" sidewall	OW-9 8/8/91 0 - 6" sidewall	OW-10 8/8/91 0 - 6" sidewall	OW-11 8/8/91 0 - 6" base	OW-12 8/8/91 0 - 6" sidewall	OW-13 8/8/91 0 - 6" base	OW-14 8/8/91 0 - 6" sidewall	OW-15 8/8/91 0 - 6" base	OW-16 8/8/91 0 - 6" base	OW-17 8/8/91 0 - 6" base
	Cleanup Levels (1)										
Total Petroleum Hydrocarbons	-	491	96.1	968	< 10.0	1930	201	403	1080	120	31 ^a
Volatile Organic Compounds		NR	NR		NR		NR	NR		NR	NR
Benzene	1					0.16			0.012		
Toluene	500			0.002		0.10			0.002		
Xylene (total)	10			0.570		78			1.7		
Base Neutral Compounds			NR		NR		NR	NR		NR	NR
Phthalates											
Di-n-Buylphthalate	100	2.0		1.1		5.6			1.8		
bis(2-Ethylhexyl)Phthalate	210 ^a	660.0		960.0		700.0			620.0		
Di-n-Octyl Phthalate	100	7.7		280.0		320.0			12.0		
Buylbenzylphthalate	100					0.30 J			0.27 J		
Polynuclear Aromatic Hydrocarbons											
Naphthalene	100			0.470		0.860					
Fluorene	100	0.110 J		0.680		6.4			0.17 J		
Phenanthrene	-	0.170 J		0.990		19.0			0.32 J		
Anthracene	500	0.050 J		0.34 J		6.9			0.070 J		
Fluoranthene	500	0.028 J		0.067 J		2.0			0.058 J		
Pyrene	500	0.078 J				0.730			0.22 J		
2-Methylnaphthalene	-	0.200 J		0.550		12.0			0.12 J		
Acenaphthene	100			0.28 J		2.5					
Chrysene	500					0.900					
Benzo(a)anthracene	500					0.21 J					
Other Base Neutrals											
N-Nitrosodiphenylamine	-										
Dibenzofuran	-	0.130 J		0.13 J		23.0			0.23 J		
									0.10 J		

^a = Compound from aldit condensate
^b = Compound reported was present in method blank
^J = Quantitation values by ion chromatography

A = Compound from aldol condensation

B = Compound reported was present in mother's milk.

J = Quantitation value is an estimate

NR = Not Required • TPHC <300ppm (NDEP letter Sept. 28, 2000)
 #18 = M-1000B Pumped & Shot

^a = NADP Proposed Soil Cleanup Standards (February 1992)

• **Specific Cleanup Standard (NDEP letter dated July 28, 1990)**

Project was sponsored by NJDEP

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**TABLE 10
ESSEX SPECIALTY PRODUCTS, INC.
BAYREILLE, NEW JERSEY
OIL/WATER SEPARATOR AREA
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY**

	Sample ID: Sample Date: Sampling Depth: Trench Location:	OW-8 8/8/91 0 - 6" sidewall	OW-9 8/8/91 0 - 6" sidewall	OW-10 8/8/91 0 - 6" sidewall	OW-11 8/8/91 0 - 6" base	OW-12 8/8/91 0 - 6" sidewall	OW-13 8/8/91 0 - 6" base	OW-14 8/8/91 0 - 6" sidewall	OW-15 8/8/91 0 - 6" base	OW-16 8/8/91 0 - 6" base	OW-17 8/8/91 0 - 6" base
Tentatively Identified Compounds	Cleanup Levels (1)										
Unknowns	--	1.1J-48JAB		11J-32JAB		3.5J-24JAB			.92J-18JAB		
Unknown Alkanes	--	.48J-1.7J							1.3J-2.5J		
Unknown Acids	--					4.9J-6.1J			1.1J-2.8J		
Unknown Hydrocarbons	--	.41J-1.7J		12J					1.4J-5.9J		
Unknown Ketones	--										
Unknown Phthalates	--										
Unknown Phenol	--										
Unknown Cyclics and/or Aromatics	--	.81J		2.7J-23J							
Propylbenzene	--										
Substituted Benzenes	--	1.6J-22J		2.8 J-11J		11J-16J					
Substituted PAHs	--					7.7J-9.9J					

A = Compound is an aldiol condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

NR = Not Required - TPHC <800ppm (NJDEP letter Sept. 20, 1990)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1991)

-- = Not specified by NJDEP

All concentrations reported in ppm

TABLE 10
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
OIL/WATER SEPARATOR AREA
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	OW-18 9/19/91 7.0 - 7.5' base	OW-19 9/19/91 4.5 - 5.0' sidewall	OW-20 9/19/91 4.5 - 5.0' sub-surface	OW-21 10/2/91 4.5 - 5.0' sub-surface	OW-22 10/2/91 3.5 - 4.0' sub-surface	OW-23A 10/30/91 4.5 - 5.0' sub-surface	OW-23B 10/30/91 5.5 - 6.0' sub-surface	OW-24A 10/30/91 3.5 - 4.0' sub-surface	OW-24B 10/30/91 4.5 - 5.0' sub-surface
	Cleanup Levels (1)									
Total Petroleum Hydrocarbons	—	< 10.0	15680	235	539	2570	37.9	101	1480	173
Volatile Organic Compounds		NR		NR			NR	NR		NR
Benzene	1		0.003							
Toluene	500		0.009							
Xylene (total)	10		2.400						0.008	
Base Neutral Compounds		NR		NR			NR	NR		NR
Phthalates										
Di-n-Butylphthalate	100		0.2J		1.3	1.5J			.27J	
Di(2-Ethylhexyl)Phthalate	210*		2000.0		9.6	48.0			910.0	
Di-n-Octyl Phthalate	100		7.9		.16J	640.0			12.0	
Butylbenzylphthalate	100					1.0J				
Polynuclear Aromatic Hydrocarbons										
Naphthalene	100									
Fluorene	100									
Phenanthrene	—		0.031 J						.088J	
Anthracene	500		0.007 J							
Fluoranthene	500									
Pyrene	500									
2-Methylnaphthalene	—		0.048 J			9.9			.34J	
Acenaphthene	100									
Chrysene	500					3.3J				
Benzo(a)anthracene	500									
Other Base Neutrals										
N-Nitrosodiphenylamine	—									
Dibenzofuran	—									

A = Compound is an alkyl condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

NR = Not Required - TPHC < 500ppm (NJDEP letter Sept. 20, 1990)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site-Specific Cleanup Standard (NJDEP letter dated July 28, 1994)

— = Not quantified by NJDEP

— = Concentrations reported in ppm

TABLE 10
ESSEX SPECIALTY PRODUCTS, INC.
BAYREILLE, NEW JERSEY
OIL/WATER SEPARATOR AREA
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location: Cleanup Levels (1)	OW-18 9/19/91 7.0 - 7.5' base	OW-19 9/19/91 4.5 - 5.0' sidewall	OW-20 9/19/91 4.5 - 5.0' sub-surface	OW-21 10/2/91 4.5 - 5.0' sub-surface	OW-22 10/2/91 3.5 - 4.0' sub-surface	OW-23A 10/30/91 4.5 - 5.0' sub-surface	OW-23B 10/30/91 5.5 - 6.0' sub-surface	OW-24A 10/30/91 3.5 - 4.0' sub-surface	OW-24B 10/30/91 4.5 - 5.0' sub-surface
Tentatively Identified Compounds										
Unknowns	--		23J-53J		37-32JAB					
Unknown Alkanes	--		43J						1.4J - 58J	
Unknown Acids	--		50J							
Unknown Hydrocarbons	--									
Unknown Ketones	--								2.3J - 4.6J	
Unknown Phthalates	--		4.2J-15J			6J-200J				
Unknown Phenol	--									
Unknown Cyclics and/or Aromatics	--		43J-63J						4.8J	
Propylbenzene	--		1.2J							
Substituted Benzenes	--		58J-340J							
Substituted PAHs	--									

A = Compound is an aldit condensation

B = Compound reported was present in method blank

J = Quantitation value is an estimate

NR = Not Required - TPHC < 800ppm (NJDEP letter Sept. 20, 1990)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 26, 1991)

-- = Not specified by NJDEP

All concentrations reported in ppm

TABLE 11
 ESSEX SPECIALTY PRODUCTS, INC.
 SAYREVILLE, NEW JERSEY
 SUPPLEMENTARY
 POST-EXCAVATION SOIL SAMPLING
 ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Location:	B1-2A 9/17/93 5' base	B1-2ADL 9/17/93 5' base	B2-1A 9/17/93 18" base	B2-2A 9/17/93 18" base	B2-2ARE 9/17/93 18" base	AP-22A 9/17/93 5' base	OW-19 9/17/93 3' sidewall	OW-19DL 9/17/93 3' sidewall
	Cleanup Levels (1)								
Total Petroleum Hydrocarbons	--								
Base Neutral Compounds									
Phthalates									
bis(2-Ethylhexyl)Phthalate	210*	220	490E	0.14	27	22	1.6B	186E	198E
Di-n-Octyl Phthalate	100	0.47							
Polynuclear Aromatic Hydrocarbons									
Pyrene	500				0.3			0.12	
Tentatively Identified Compounds									
Unknowns	--	18.35J	18JAB	18.51	44	45.1	17J	28.02	33.3
Unknown Alkanes	--			0.08	28.8	28.6	.36J	5.28	7.08
Unknown Phthalates	--	.48J							
Unknown Cyclics and/or Aromatics	--				13.2	58			11.7
Unknown Acid	--	1.1J		1.5			0.3		

A = Compound is an aliphatic condensate

B = Compound reported was present in method blank

E = Value exceeds instrument calibration range

J = Quantitation value is an estimate

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 26, 1991)

-- = Not specified by NJDEP

All concentrations reported in ppm

TABLE 12
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
WETLANDS
POST-EXCAVATION SOIL SAMPLING
ANALYTICAL RESULTS SUMMARY

	Sample ID: Sample Date: Sampling Depth: Trench Location:	WL-1 5/1/91 0-6" base	WL-2 5/1/91 0-6" base	WL-3 5/1/91 0-6" base	WL-4 5/1/91 0-6" base
	Cleanup Levels (1)				
Total Petroleum Hydrocarbons	-	467	2390	4040	692
Volatile Organic Compounds		NR			
Xylene (total)	10		0.32	0.17	0.016
Base Neutral Compounds		NR			
Phthalates					
Di-n-Butylphthalate	100		3.1 B	1.7 JB	0.430 JB
bis(2-Ethylhexyl)Phthalate	210*		13.0 B	7.2 B	2.2 B
Polynuclear Aromatic Hydrocarbons					
Phenanthrene	-		0.260 J	0.170 J	
Anthracene	500		0.025 J		
Fluoranthene	500		0.500 J	0.260 J	0.030 J
Pyrene	500		0.460 J	0.130 J	0.034 J
Tentatively Identified Compounds					
Unknowns					
Unknown Alkanes	-		0.74 J - 110 JAB	1.2 J - 120 JAB	0.220 J - 30 JAB
Unknown Cyclics and/or Aromatics	-		11.0 J	5.2 J	1.6 JB - 2.2 JB
Substituted PAHs	-		0.80 J - 4.4 J		
			1.0 J		

A = Compound is an alicyclic condensate

B = Compound reported was present in method blank

J = Quantitation value is an estimate

NR = Not Required - TPHC <500ppm (NJDEP letter Sept. 20, 1990)

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

* = Site Specific Cleanup Standard (NJDEP letter dated July 28, 1991)

- = Not specified by NJDEP

All concentrations reported in ppm

**TABLE 13
ESSEX SPECIALTY PRODUCTS, INC.
BAYREVILLE, NEW JERSEY
GROUNDWATER SAMPLING
ANALYTICAL RESULTS SUMMARY**

	Sample ID: Sample Date: Sampling Depth: Location:	MW-5S 12/9/92	MW-6S 12/9/92	MW-7S 12/9/92	MW-7D 12/9/92	MW-6D 12/9/92	MW-6S 12/9/92	MW-2S 12/7/92	MW-1S 12/8/92	SMW-3S 12/8/92
	Cleanup Levels (1)									
Total Petroleum Hydrocarbons	—									
Volatile Organic Compounds										
Acrolein	—									
Benzene	1		1	1						
Chlorobenzene	1270									
1,1-Dichloroethane	70									
1,1-Dichloroethene	2			1						
1,2-Dichloroethane (total)	110									
Ethylbenzene	700									
Methylene Chloride	3			1						
2-Propanone (acetone)	700	1 B		2 B	1 B	1 B	1		3	2
Toluene	1000						3 B	3 B	2 B	4 B
Xylene (total)	40			10				1		
Total VOC TICs	—		2 J	7 J	5 J			119		8 J
Base Neutral Compounds										
Phthalates										
bis(2-Ethylhexyl)Phthalate	30	3 J	30	140	1 J	1 J			2 J	
Butyl Benzyl Phthalate	100									
Diethyl Phthalate	5000									
Di-n-Butylphthalate	900		2 J	1 J						
Polynuclear Aromatic Hydrocarbons										
Naphthalene	30									
Total Base Neutral TICs	—	37 J	25 J		3 J	37 J	35 J		50 J	24 J

B = Compound reported was present in method blank

J = Quantitation value is an estimate

TICs = Tentatively Identified Compounds

(1) = NJDEP Proposed Soil Cleanup Standards (February 1988)

MW = data specified by NJDEP

All concentrations reported in ppb

**TABLE 13
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
GROUNDWATER SAMPLING
ANALYTICAL RESULTS SUMMARY**

	Sample ID: Sample Date: Sampling Depth: Location: Cleanup Levels (1)	SMW-48 12/8/92	OW-18 12/8/92	OW-48 12/8/92	OW-10 12/10/92	OW-106D 12/10/92	OW-107D 12/10/92	MW-8S 12/10/92	OW-107S 12/10/92	ETHYL 8 12/10/92
Total Petroleum Hydrocarbons	—									
Volatile Organic Compounds										
Acetone	—							34	13	
Benzene	1							8		
Chlorobenzene	1270							1		
1,1-Dichloroethene	70									
1,1-Dichloroethene	2									
1,2-Dichloroethene (total)	110			1				1		
Ethylbenzene	700	1								
Methylene Chloride	3				2		1	1	1	1
2-Propanone (acetone)	700	3 B	3 B	2 B	3 B	2 B	1 B	3 B	2 B	1 B
Toluene	1000									
Xylene (total)	40							45	31	
Total VOC TICs	—						10 J	88 J	26 J	13 J
Base Neutral Compounds										
Phthalates										
Di(2-Ethylhexyl) Phthalate	30					10				
Butyl Benzyl Phthalate	100									
Diethyl Phthalate	5000									
Di-n-Butylphthalate	900			1	1					
Polynuclear Aromatic Hydrocarbons										
Naphthalene	30									
Total Base Neutral TICs	—	12 J	22 J	11 J	3218 J	12 J	35 J	180 J	55 J	16 J

B = Compound reported was present in method blank

J = Quantitation value is an estimate

SMW = Tentatively Identified Compounds

10 = NJDEP Proposed Soil Cleanup Standards (February 1992)

1000 = Value specified by NJDEP

10000 = Value specified by NJDEP

**TABLE 13
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
GROUNDWATER SAMPLING
ANALYTICAL RESULTS SUMMARY**

	Sample ID: Sample Date: Sampling Depth: Location:	MW-1D 12/10/92	OW-1118 12/14/92	OW-111D 12/14/92	OW-3S 12/14/92	OW-3D 12/14/92	OW-2S 12/14/92	OW-4D 12/14/92
	Cleanup Levels (1)							
Total Petroleum Hydrocarbons	--							
Volatile Organic Compounds								
Acrolein	--							
Benzene	1							
Chlorobenzene	1270							
1,1-Dichloroethane	70							
1,1-Dichloroethene	2							
1,2-Dichloroethane (total)	110							
Ethylbenzene	700							
Methylene Chloride	3							
2-Propanone (acetone)	700	1 B	1 B	1 B	1 B	1 B	2 B	1 B
Toluene	1000		4 B	2 B	2 B	3 B	3 B	2 B
Xylene (total)	40		5	1				
Total VOC TICs	--				3 J	52 J	10 J	6 J
Base Neutral Compounds								
Phthalates								
bis(2-Ethylhexyl)Phthalate	30	1					1 J	4
Butyl Benzyl Phthalate	100						3 J	4
Diethyl Phthalate	5000		2 J			4 J		
Di-n-Butylphthalate	900		12	4 J	16	16	42	23
Polynuclear Aromatic Hydrocarbons								
Naphthalene	30							
Total Base Neutral TICs	--	128	53	211		10 J	3 J	6 J

B = Compound reported was present in method blank

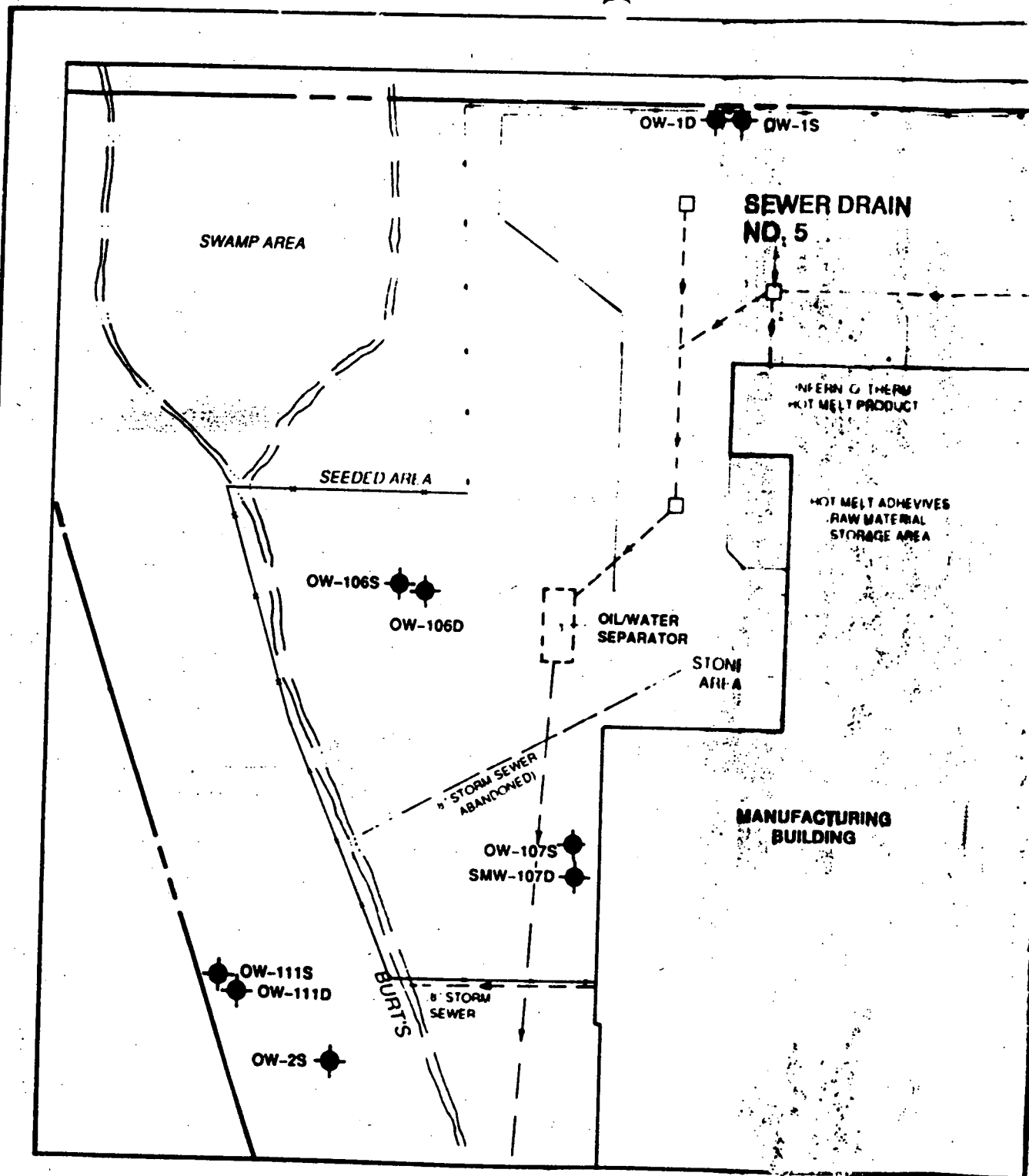
J = Quantitation value is an estimate

TICs = Tentatively Identified Compounds

(1) = NJDEP Proposed Soil Cleanup Standards (February 1992)

-- = Not specified by NJDEP

Soil concentrations reported in ppb



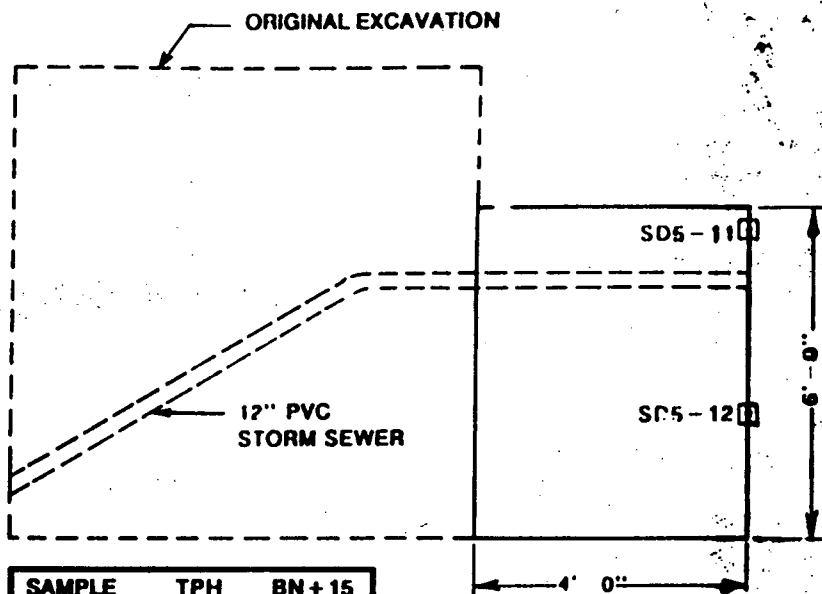
R DRAIN

PERN O-THERM
MELT PRODUCT

MELT ADHESIVES
MATERIAL
STORAGE AREA

FACTURING
UILDING

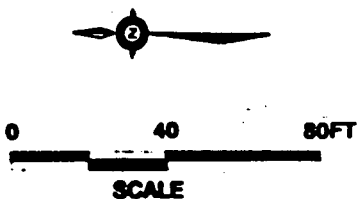
SEWER DRAIN NO.5



SAMPLE LOCATION	TPH (Mg/Kg)	BN + 15 (Mg/Kg)
SD5-11	2,316	9.35
SD5-12	1,566	11.76

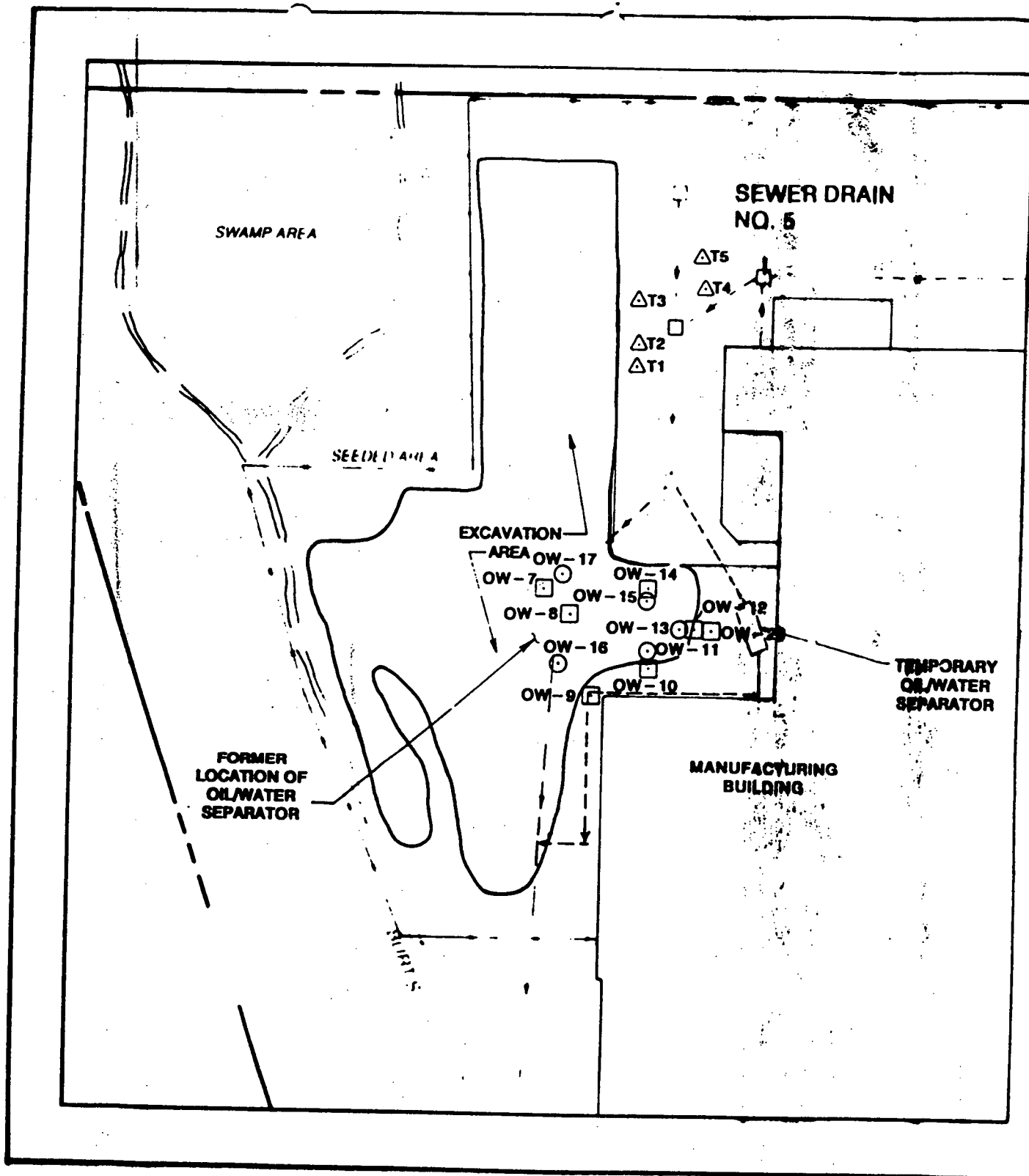
NOTES:

SEWER DRAIN NO.5 ADDITION EXCAVATION DEPTH: 2FT
 [] SIDEWALL POST - EXCAVATION SAMPLE LOCATION (APPROXIMATE)
 COLLECTED MIDWAY BETWEEN TOP AND BASE OF EXCAVATION
 0-6" INTO SIDEWALL



SEWER DRAIN NO.5
 ADDITIONAL EXCAVATION
 ESSEX SPECIALTY PRODUCTS, INC.
 SAYREVILLE, NEW JERSEY
 ECRA CASE NO. 88904
 WOODWARD - CLYDE CONSULTANTS, INC.
 CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
 WAYNE, NEW JERSEY

DR. BY: FWD SCALE: AS SHOWN PROJ. NO.: 88904
 CK'D BY: DRK DATE: 13 JUL 1982 FIGURE NO.: 1



R DRAIN

LEGEND:

- ☐ SPILL PREVENTION/SEWER DRAINS
- SUB-SURFACE SOIL SAMPLE LOCATION (APPROXIMATE)
- ☐ SIDEWALL POST - EXCAVATION SOIL SAMPLE LOCATION (APPROXIMATE)
- BASE POST - EXCAVATION SOIL SAMPLE LOCATION (APPROXIMATE)

TEMPORARY
OIL/WATER
SEPARATOR

URING
G



SCALE

PHASE I OIL/WATER SEPARATOR SOIL SAMPLE LOCATIONS
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY
ECRA CASE NO. 88904

WOODWARD - CLYDE CONSULTANTS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL
WAYNE, NEW JERSEY

DR. BY: KJF SCALE: AS SHOWN PROJ. NO. 8824293
CK'D BY: CWT DATE: 14 JUL 1992 FIG. NO. 6

PROPERTY BORDER

CONCRETE
PAVEMENT



AE-1 AE-31
AE-2 AE-32
AE-25 AE-30 TEST PIT AE-33
AE-34

AE-27 AE-28 AE-36 AE-35

AE-25 AE-26 AE-18 AE-17

WL-3 WL-4 AE-9 AE-20 AE-16 AE-15

AE-23 AE-10 AE-24 AE-14 AE-13
CONCRETE
PAVEMENT

UNDISTURBED
WETLANDS

SECURITY FENCE

WL-2 WL-1 AE-7 AE-19
AE-3 AE-5 AE-8
AE-4 AE-6 AE-22 AE-21
AE-12 AE-11

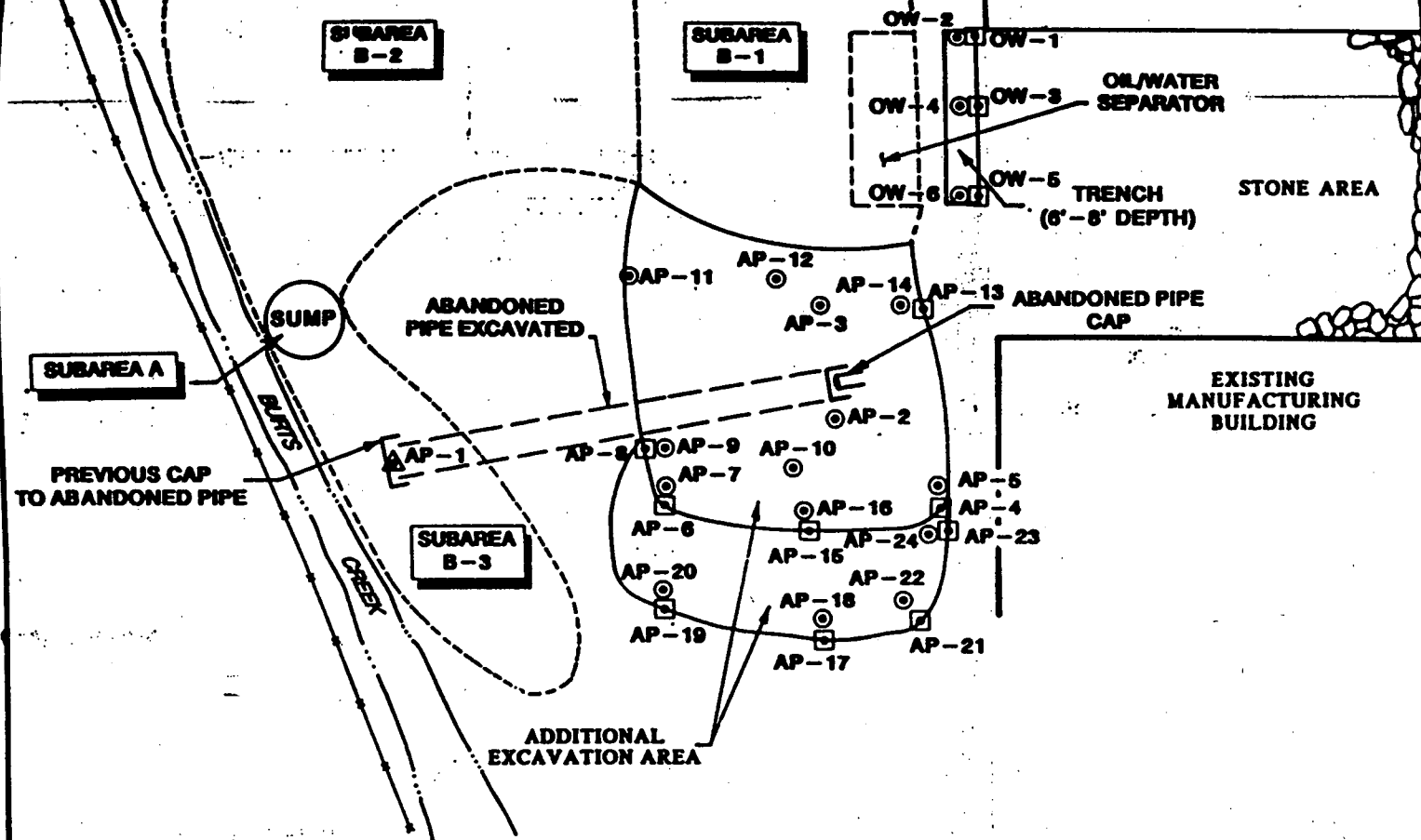
SUBAREA
B-2

SUBAREA
B-1

OW-2

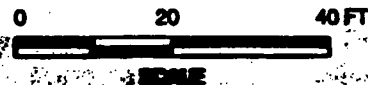
OW-1

50



LEGEND

- SIDEWALL POST EXCAVATION SAMPLE LOCATION (APPROXIMATE)
- BASE POST-EXCAVATION SAMPLE LOCATION (APPROXIMATE)
- △ WATER SAMPLE LOCATION (APPROXIMATE)



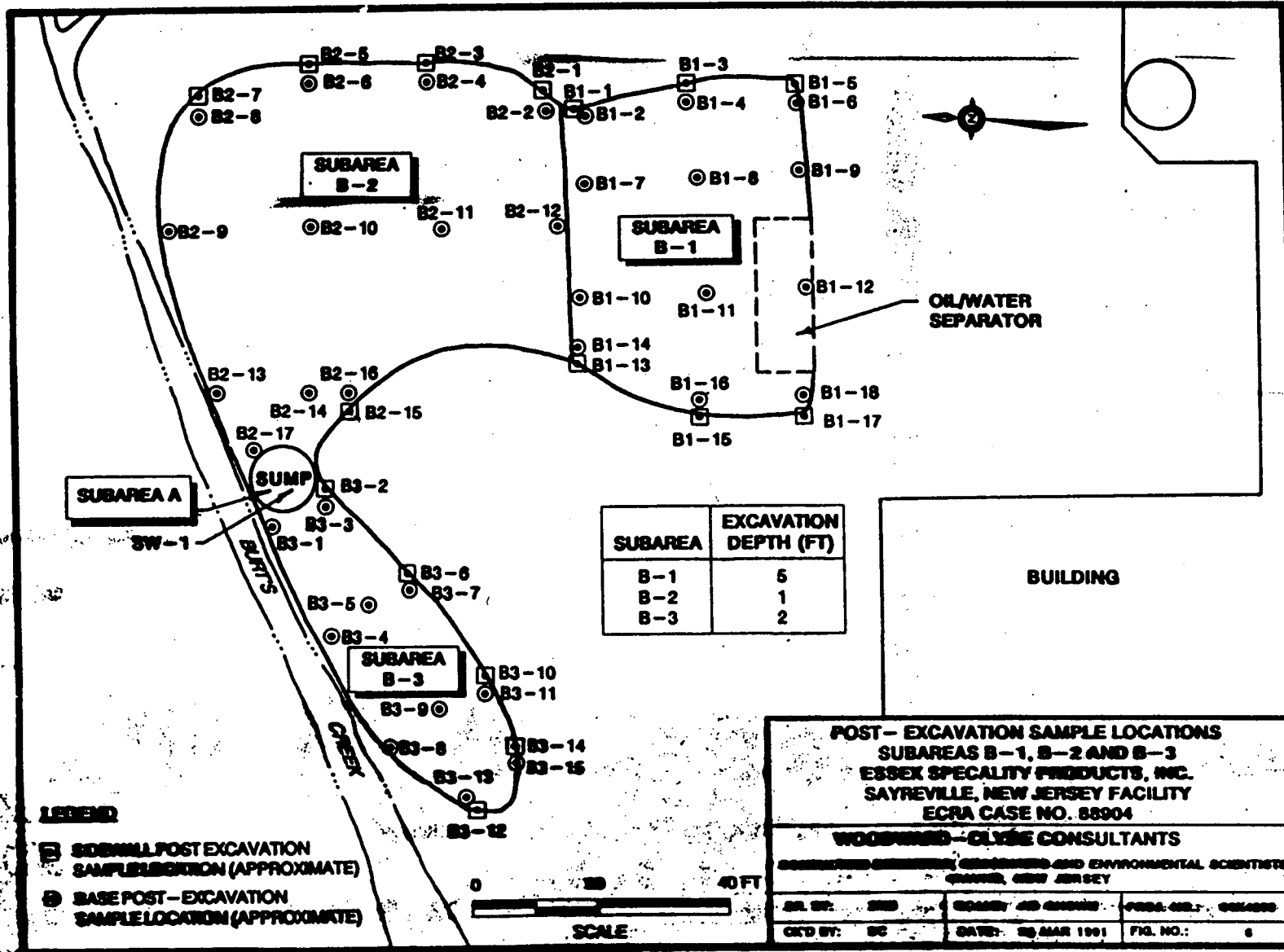
**POST-EXCAVATION SAMPLE LOCATIONS
ADDITIONAL EXCAVATION AREAS
ESSEX SPECIALTY PRODUCTS, INC.
SAYREVILLE, NEW JERSEY FACILITY
ECRA CASE NO. 88004**

WOODWARD-CLYDE CONSULTANTS

ENGINEERING, CONSULTING AND ENVIRONMENTAL SCIENTISTS
BRIDGE, NEW JERSEY

DR. BY: FMB	SCALE: AS SHOWN	PROJ. NO.: 80X4283
CRD BY: SC	DATE: 13 JUL 1988	FIG. NO.: 9

56

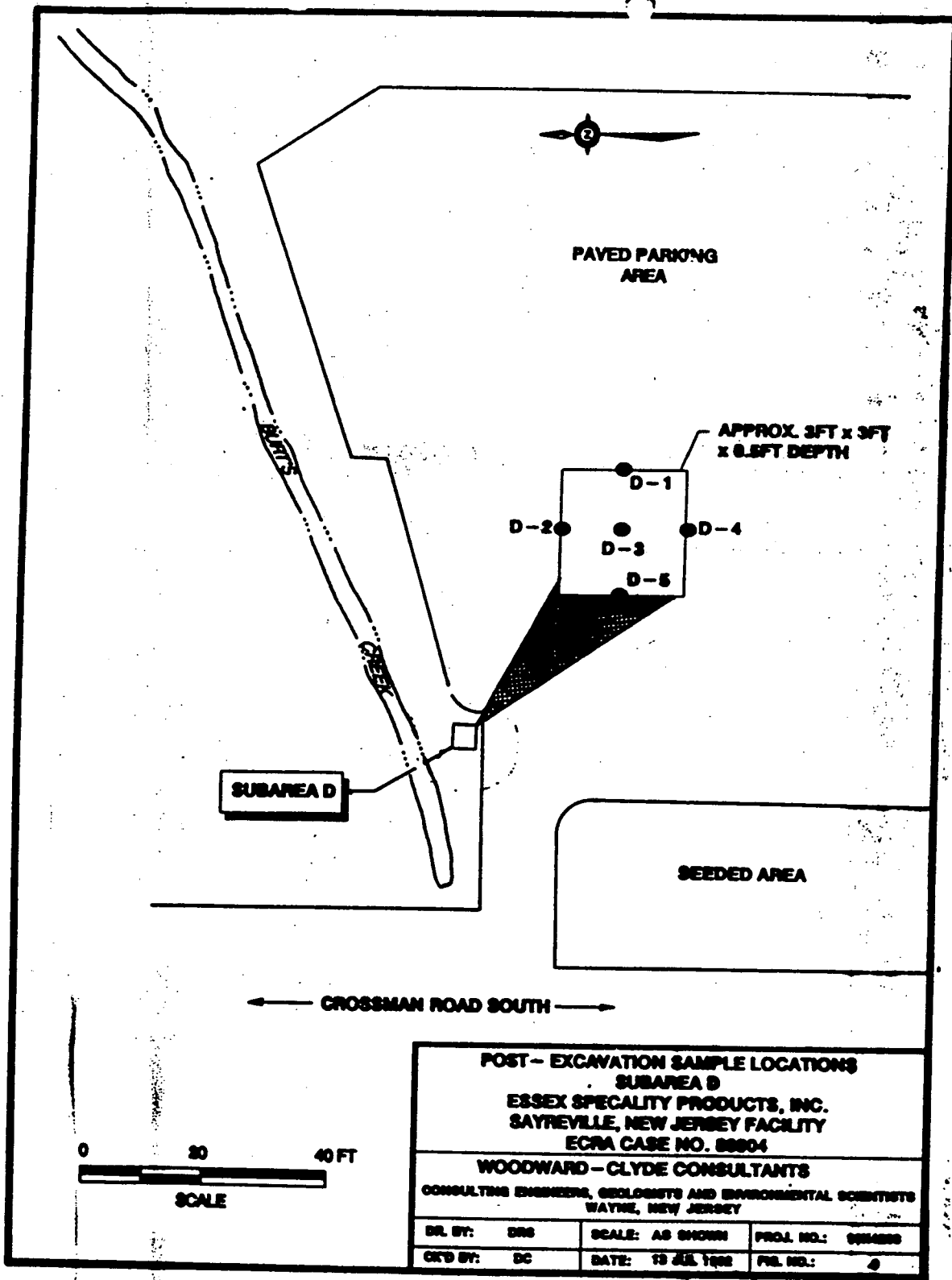


SUBAREA	EXCAVATION DEPTH (FT)
B-1	5
B-2	1
B-3	2

LEGEND

- SIDEWALL POST EXCAVATION SAMPLE LOCATION (APPROXIMATE)
- BASE POST-EXCAVATION SAMPLE LOCATION (APPROXIMATE)

POST- EXCAVATION SAMPLE LOCATIONS SUBAREAS B-1, B-2 AND B-3 ESSEX SPECIALTY PRODUCTS, INC. SAYREVILLE, NEW JERSEY FACILITY ECRA CASE NO. 88904			
WOODWARD-CLYDE CONSULTANTS <small>REGISTERED ENGINEERS, CHEMISTS AND ENVIRONMENTAL SCIENTISTS</small> <small>SPRINGFIELD, NEW JERSEY</small>			
<small>DR. OF:</small> END	<small>DESIGN AND DRAWING:</small>	<small>PROJECT NO.:</small> 0004000	<small>DATE:</small> 20 MAR 1991
<small>CHKD BY:</small> BC	<small>DATE:</small> 20 MAR 1991	<small>FIG. NO.:</small> 6	





PROPERTY BORDER

CONCRETE
PAVEMENT

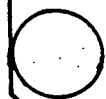


UNDISTURBED
WETLANDS

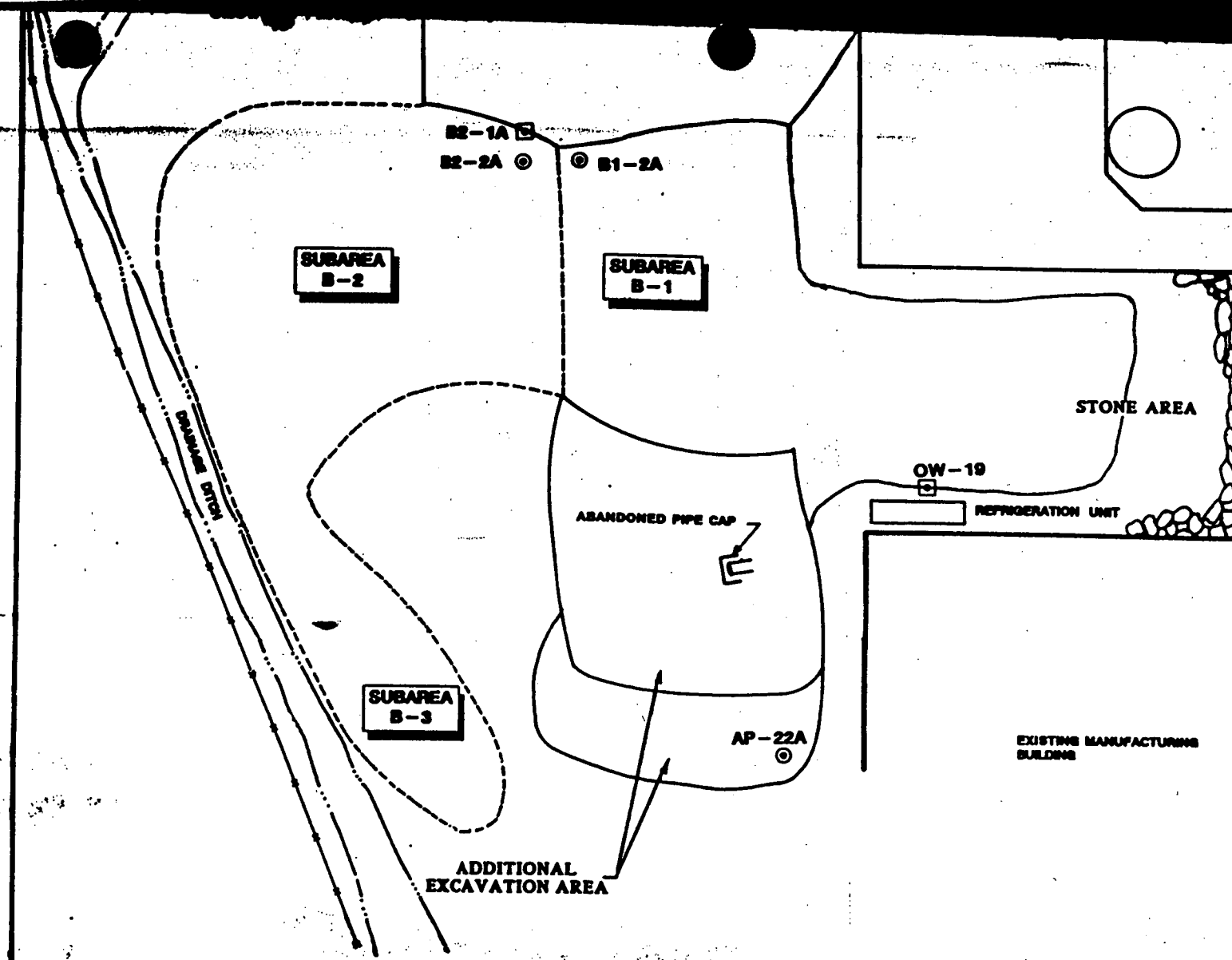
SECURITY FENCE

CONCRETE
PAVEMENT

22-24
22-24
22-24



69

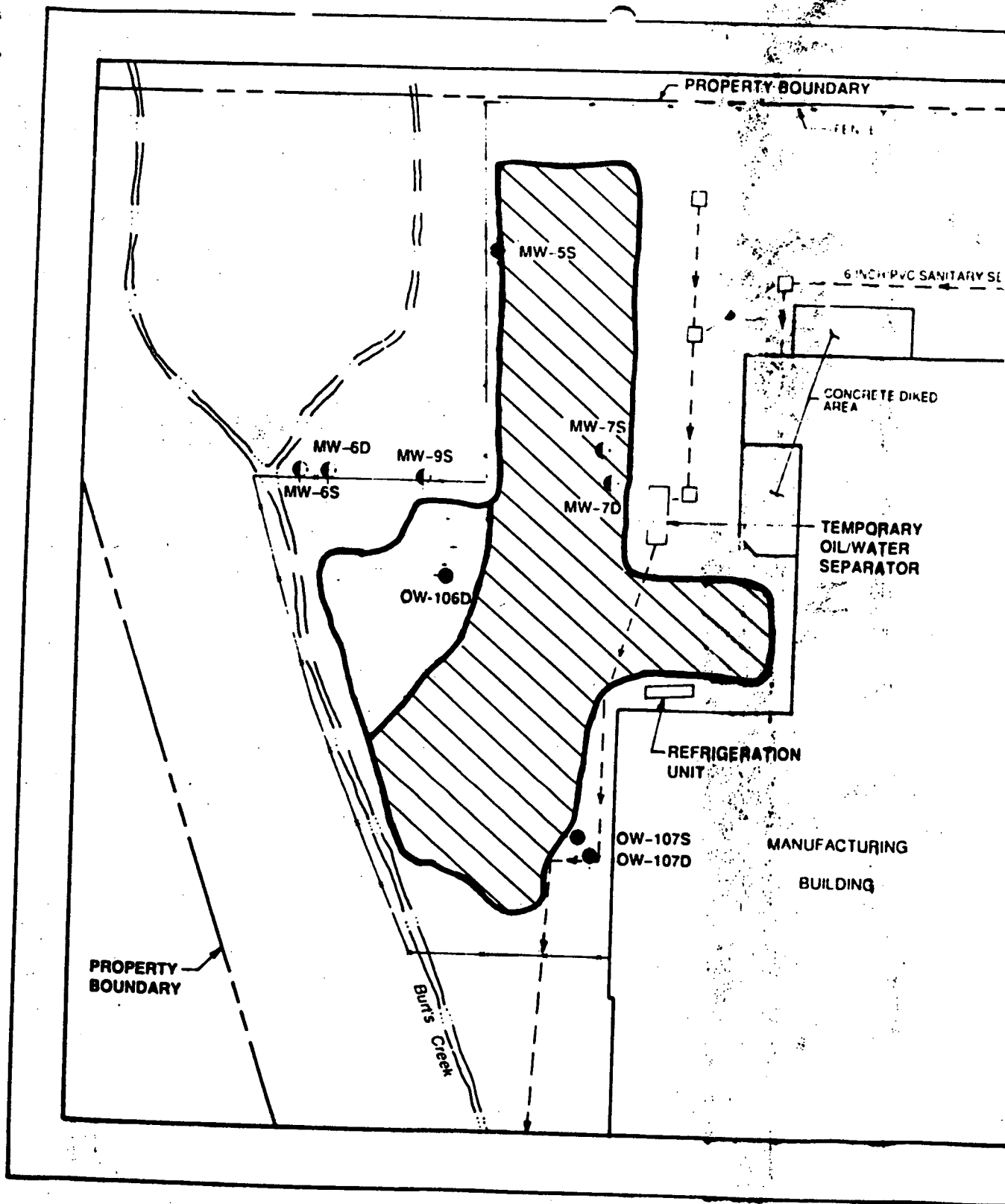


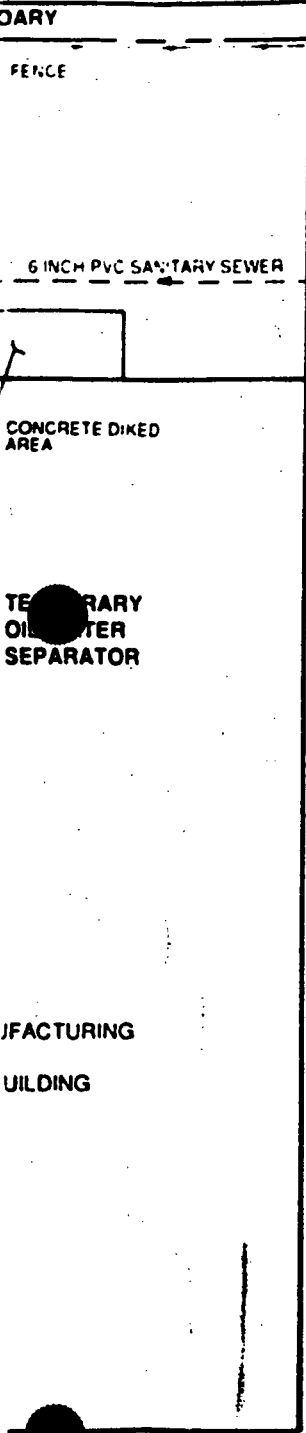
LEGEND

- ☐ SIDEWALL POST EXCAVATION SAMPLE LOCATION (APPROXIMATE)
- ⊙ BASE POST-EXCAVATION SAMPLE LOCATION (APPROXIMATE)



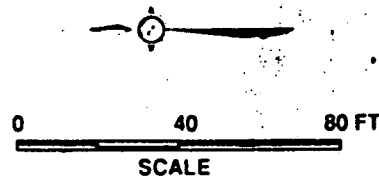
POST-EXCAVATION SAMPLE LOCATIONS SEPTEMBER 1983 RE-SAMPLING ACTIVITIES ESSEX SPECIALTY PRODUCTS, INC. SAYREVILLE, NEW JERSEY FACILITY ISRA CASE NO. 88904		
WOODWARD-CLYDE CONSULTANTS CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS CHRYSLER BUILDING NEW YORK, NEW YORK		
DR. BY: FWD CTD BY: SS	SCALE: AS SHOWN DATE: 19 OCT 83	PROJ. NO.: 9024293 FIG. NO.: 8





LEGEND:

- EXISTING MONITORING WELL LOCATION AND NUMBER
- NEWLY INSTALLED MONITORING WELL LOCATION AND NUMBER
- SPILL PREVENTION SEWER DRAINS
- APPROXIMATE LIMITS OF PREVIOUSLY EXCAVATED AREAS
- APPROXIMATE AREA FOR LANDSCAPE RESTORATION
- APPROXIMATE AREA FOR WETLANDS RESTORATION



BACKFILLING AND RESTORATION AREAS
 ESSEX SPECIALTY PRODUCTS, INC.
 SAYREVILLE, NEW JERSEY
 ECRA CASE NO. 88904

WOODWARD-CLYDE CONSULTANTS
 CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
 WAYNE, NEW JERSEY

DR BY	BAS	SCALE	AS SHOWN	PROJECT NO.	0014393
CHKD BY	PAR	DATE	16 APR 1993	FIG NO.	10

602

REFERENCE NO. 6

Woodward-Clyde

Engineering & sciences applied to the earth & its environment

May 22, 1997

Ms. Grace Jacob
ISRA Case Manager
New Jersey Department of Environmental Protection
Division of Responsible Parties Remediation
401 East State Street, CN 432
Trenton, New Jersey 08625-0028

Subject: Abandonment of On-site Monitoring Wells
Former Essex Specialty Products, Inc. Facility
One Crossman Road South, Sayreville, New Jersey
ISRA Case #88904

Dear Ms. Jacob:

In accordance with the New Jersey Department of Environmental Protection (NJDEP) letter of February 21, 1997 from Mr. Stephen Maybury of NJDEP to Ms. Deborah Rosenthal of Essex Specialty Products, Inc., Woodward-Clyde Consultants (Woodward-Clyde) herewith submits copies of the Well Abandonment Reports for your information. As required by the NJDEP Water Supply Element, Bureau of Water Allocation Guidelines, Subchapter 9, Sealing of Abandoned Wells, the originals (i.e., "White Copies") of these reports have been submitted by Warren George Inc. directly to the Bureau of Water Allocation.

If you have any questions about any of this work or need any additional information, please do not hesitate to contact me.

Very truly yours,


Robert G. Galibris
Project Manager

RGG:lgd

cc: Mr. Ben Baker
The Dow Chemical Company

Wayne Office
P.O. Box 290 • 201 Willowbrook Boulevard • Wayne, New Jersey 07470
201-785-0700 • 212-926-2878 • Fax 201-785-0023

Ref. No 6 p. 1

W-9000008LTR.DOC22-May-97CODE

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-19426
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON, N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

MV 1-S LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

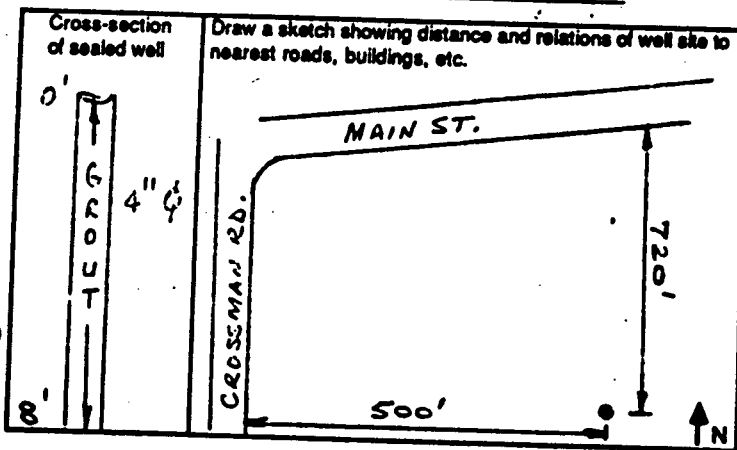
PERMIT # OF NEW WELL: _____

TOTAL DEPTH OF WELL 8'
DIAMETER 4"
CASING LENGTH 4'
SCREEN LENGTH 4'
NUMBER OF CASINGS 1

MATERIAL USED TO SEAL WELL:

7 Gallons of Water
(1) Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☐ Consolidated
☒ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: _____

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____ (Date)
(NJDEP Official)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

C/O WGI P.O. Box 413 Jersey City, N.J. 5-7-97
Address Mailing Date

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

J-1296
License #

COPIES: White - Water Allocation Yellow - Owner Pink - Health Dept. Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # UNKNOWN
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.
ADDRESS 1401 BROAD ST. CLIFTON N.J. 07015
WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County
Well No. MW-10 Lot & Block No. LOT 2 BLOCK 251

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

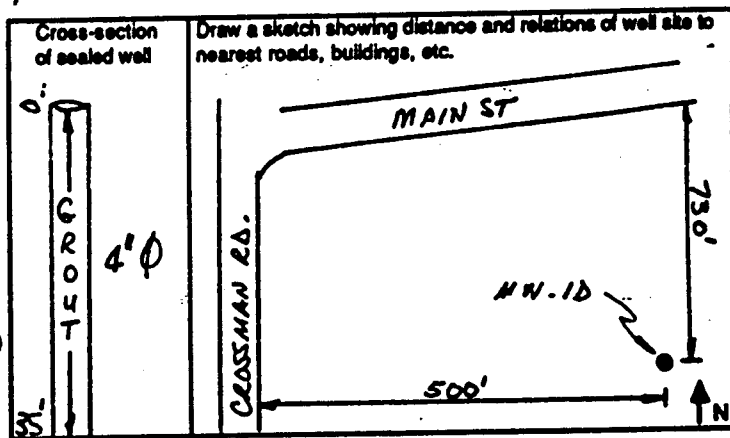
REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES ☒ NO PERMIT # OF NEW WELL: _____

TOTAL DEPTH OF WELL 35'
DIAMETER 4"
CASING LENGTH 25'
SCREEN LENGTH 10'
NUMBER OF CASINGS 1

MATERIAL USED TO SEAL WELL:
21 Gallons of Water
222 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: _____

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____ (NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY 40 WGT PO BOX 413 Jersey City N.J. 5-7-97
Name of NJ Certified Well Sealer Address Mailing Date
R.V. Gregory 5-1296
Signature of NJ Certified Well Sealer License #
Performing Work

COPIES: White - Water Allocation Yellow - Owner Pink - Health Dept. Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-19427
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON, N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE, N.J. MIDDLESEX COUNTY
Street & No., Township, County

MW 2-S LOT 2, BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

PERMIT # OF NEW WELL: —

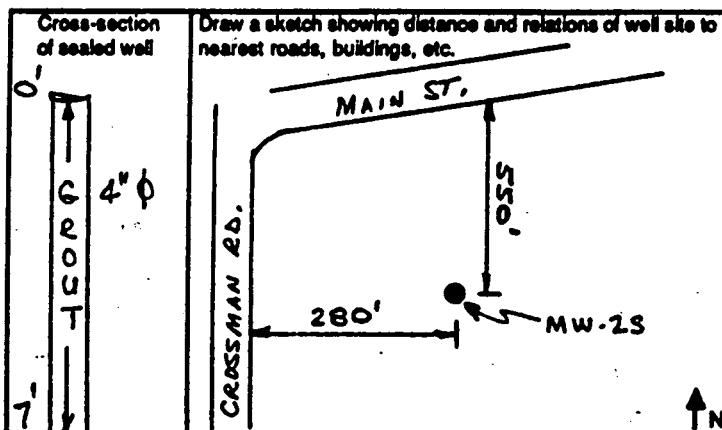
TOTAL DEPTH OF WELL 7'
DIAMETER 4"
CASING LENGTH 2'
SCREEN LENGTH 5'
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

7 Gallons of Water
94 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION:

☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO

CASING MATERIAL: —

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO

WHAT WERE THE OBSTRUCTIONS: —

IF "YES", AUTHORIZATION GRANTED BY — ON — (Date)

(NJDEP Official)

(Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

C/O WGT P.O. Box 413, Jersey City N.J.
Address

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date
J-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

4

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-19430
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON, N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE, N.J. MIDDLESEX COUNTY
Street & No., Township, County

SMW-3S LOT 2, BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

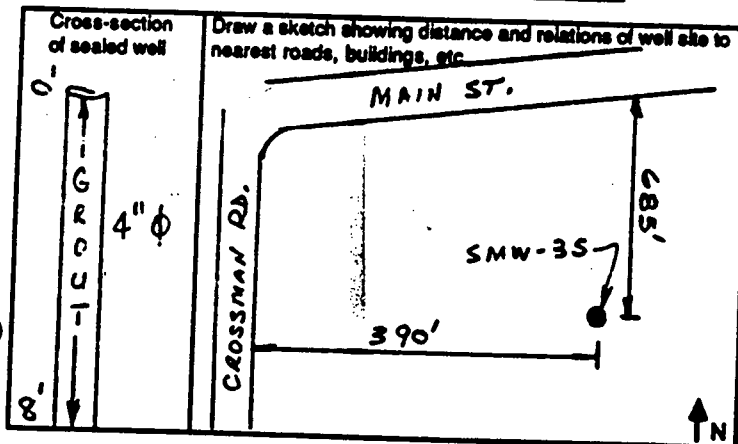
PERMIT # OF NEW WELL: —

TOTAL DEPTH OF WELL 8'
DIAMETER 4"
CASING LENGTH 5'
SCREEN LENGTH —
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

7 Gallons of Water
44 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: —

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: —

IF "YES", AUTHORIZATION GRANTED BY — ON — (Date)
(NJDEP Official)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

C/O WGI P.O. Box 413 Jersey City N.J.
Address

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date
J-1296
License #

COPIES: White - Water Allocation Yellow - Owner Pink - Health Dept. Goldenrod - Driller

DWR-020
5/93

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-19429
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON, N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE, N.J. MIDDLESEX COUNTY
Street & No., Township, County

SMW-4S LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

PERMIT # OF NEW WELL: —

TOTAL DEPTH OF WELL 10'

DIAMETER 4"

CASING LENGTH 8'

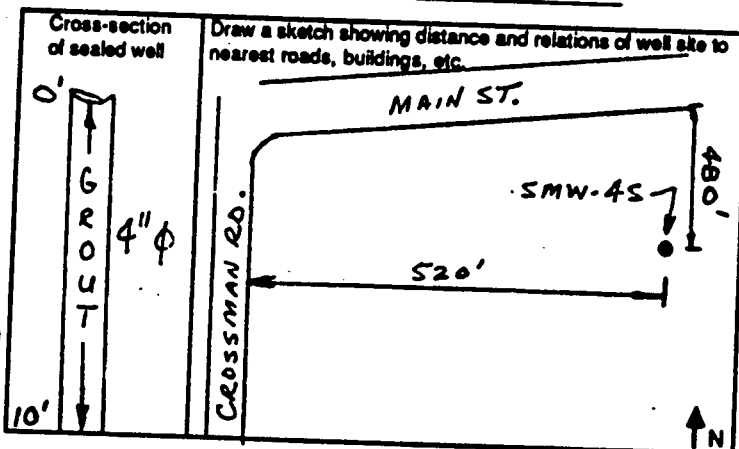
SCREEN LENGTH 7'

NUMBER OF CASINGS 1

MATERIAL USED TO SEAL WELL:

7 Gallons of Water
64 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: —

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: —

IF "YES", AUTHORIZATION GRANTED BY — ON — (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7-9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

C/O INGT P.O. BOX 413, Jersey City, N.J.
Address

5-7-97
Mailing Date

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

J-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-6203
of well sealed

DATE WELL SEALED 4-16-97

PROPERTY OWNER ESSEX CHEMICAL CORP

ADDRESS 1401 BROAD ST. CLIFTON N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

MW-55 LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

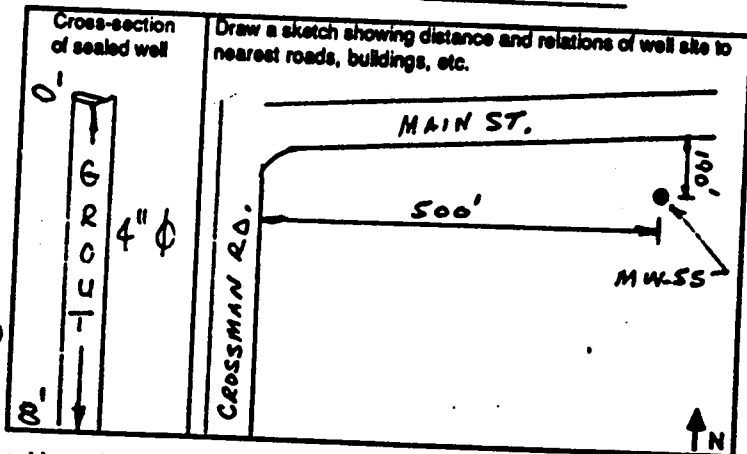
PERMIT # OF NEW WELL: —

TOTAL DEPTH OF WELL 8'
DIAMETER 4"
CASING LENGTH 3'
SCREEN LENGTH 5'
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

7 Gallons of Water
44 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☐ Consolidated
☒ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: —

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: —

IF "YES", AUTHORIZATION GRANTED BY — (NJDEP Official) ON — (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

90 WGI Bldg 413, Jersey City N.J.
Address

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date
J-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-28548
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON, N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE, N.J. MIDDLESEX COUNTY
Street & No., Township, County

MW-6S LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

PERMIT # OF NEW WELL: —

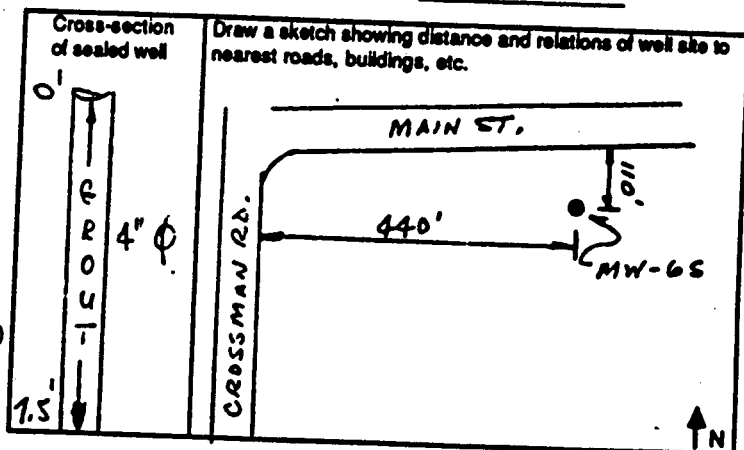
TOTAL DEPTH OF WELL 7.5'
DIAMETER 4"
CASING LENGTH 7.5'
SCREEN LENGTH 5'
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

7 Gallons of Water
94 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION:

☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: —

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: —

IF "YES", AUTHORIZATION GRANTED BY — ON — (NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

40 WGT Box 413, Jersey City, N.J.
Address

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date

T-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-28549
of well sealed

DATE WELL SEALED 4-16-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON, N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE, N.J. MIDDLESEX COUNTY
Street & No., Township, County

AW-6D LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

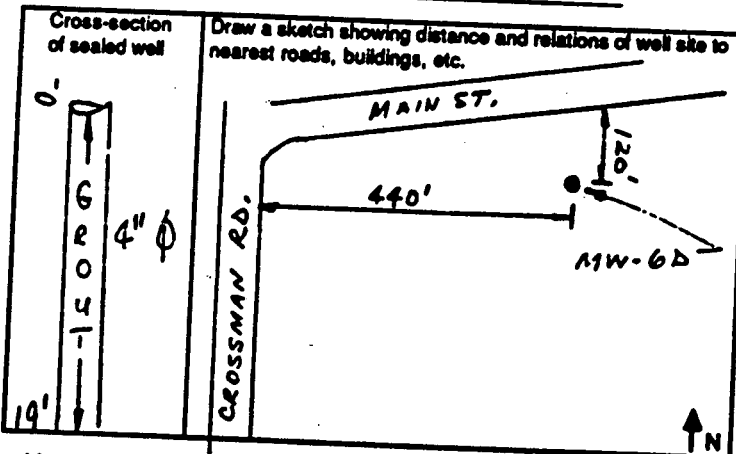
PERMIT # OF NEW WELL: _____

TOTAL DEPTH OF WELL 19'
DIAMETER 4"
CASING LENGTH 9'
SCREEN LENGTH 10'
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

10 Gallons of Water
140 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☐ Consolidated
☒ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: _____

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____

(NJDEP Official)

ON _____

(Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. McGarry
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

40 WGT Box 413, Jersey City, N.J.
Address

5-7-97
Mailing Date

R.V. McGarry
Signature of NJ Certified Well Sealer
Performing Work

J-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-28551
of well sealed

DATE WELL SEALED 4-16-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON, N.J. 07015

WELL LOCATION 1 CROSSMAN RD., SAYREVILLE, N.J. MIDDLESEX COUNTY
Street & No., Township, County

MW-7S LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

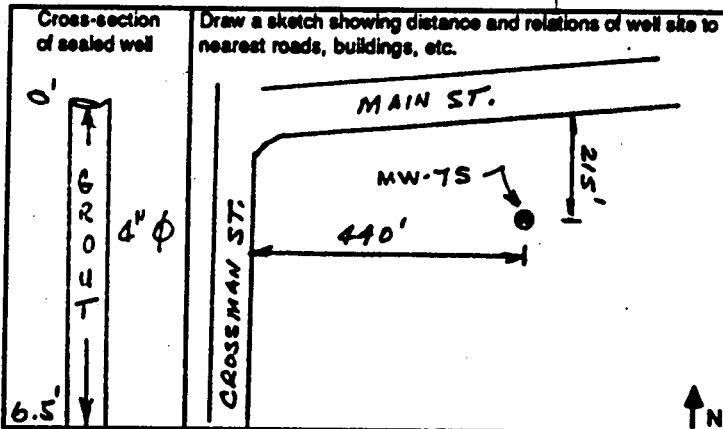
PERMIT # OF NEW WELL: —

TOTAL DEPTH OF WELL 6.5'
DIAMETER 4"
CASING LENGTH 2.5'
SCREEN LENGTH 4'
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

7 Gallons of Water
74 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: —

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: —

IF "YES", AUTHORIZATION GRANTED BY — ON — (NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

6 WGI Box 413 Jersey City, N.J.
Address

5-7-97
Mailing Date

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

J-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-28550
of well sealed

DATE WELL SEALED: 4-16-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON N.J. 07015

WELL LOCATION 1 CROSSMAN RD., SAYREVILLE, N.J.
Street & No., Township, County

FW-7D LOT 2, BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

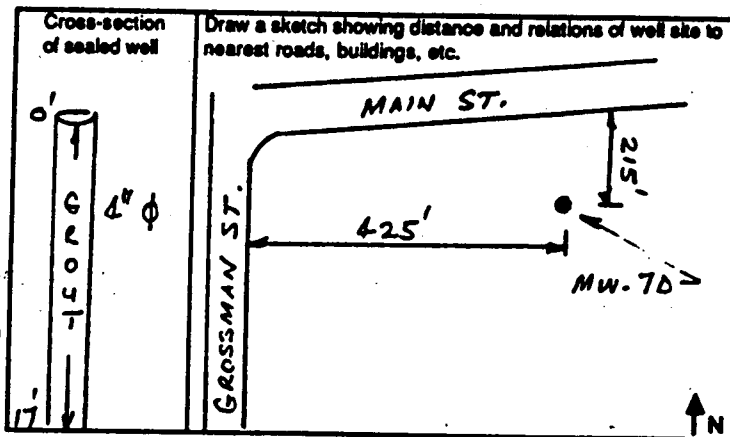
PERMIT # OF NEW WELL: —

TOTAL DEPTH OF WELL: 17'
DIAMETER: 4"
CASING LENGTH: 5'
SCREEN LENGTH: 9'
NUMBER OF CASINGS: —

MATERIAL USED TO SEAL WELL:

10 Gallons of Water
140 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☐ Consolidated
☒ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: —

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: —

IF "YES", AUTHORIZATION GRANTED BY — ON — (NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R. V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

410 WGT. P.O. Box 413 Jersey City, N.J.
Address

5-7-97
Mailing Date

R. V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

J. 1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-28550
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON, N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE, N.J. MIDDLESEX COUNTY
Street & No., Township, County

MW-95 LOT 2, BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

PERMIT # OF NEW WELL: ---

TOTAL DEPTH OF WELL 6.5'
DIAMETER 4"
CASING LENGTH 3.5'
SCREEN LENGTH 5'
NUMBER OF CASINGS -

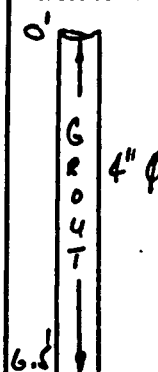
MATERIAL USED TO SEAL WELL:

7 Gallons of Water
0.4 Lbs. of Cement
- Lbs. of Bentonite
- Lbs. of Sand/Gravel
(none if well is contaminated)

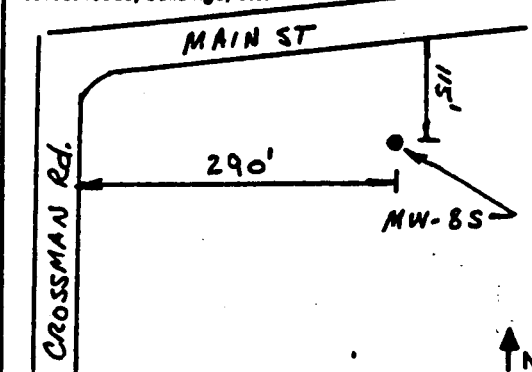
FORMATION:

☒ Consolidated
☐ Unconsolidated

Cross-section
of sealed well



Draw a sketch showing distance and relations of well site to
nearest roads, buildings, etc.



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: ---

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: ---

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____ (Date)
(NJDEP Official)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

C/O WGI P.O. Box 413, Jersey City, N.J. 5-7-97
Address Mailing Date

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

J-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-28562
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON, N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

MW-9S LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

PERMIT # OF NEW WELL: —

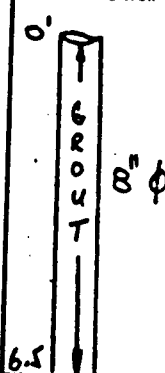
TOTAL DEPTH OF WELL 6.5'
DIAMETER 8"
CASING LENGTH 4.5'
SCREEN LENGTH 5'
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

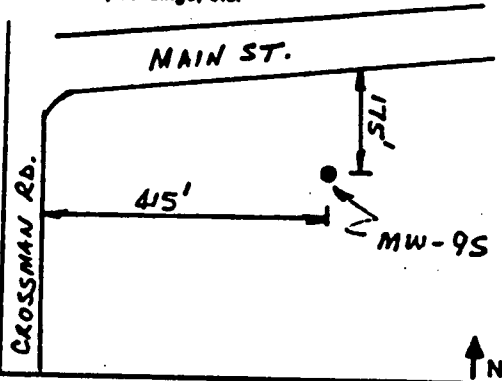
<u>14</u>	Gallons of Water
<u>198</u>	Lbs. of Cement
<u>—</u>	Lbs. of Bentonite
<u>—</u>	Lbs. of Sand/Gravel
(none if well is contaminated)	

FORMATION: ☒ Consolidated
☐ Unconsolidated

Cross-section
of sealed well



Draw a sketch showing distance and relations of well site to
nearest roads, buildings, etc.



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: —

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: —

IF "YES", AUTHORIZATION GRANTED BY — ON — (Date)

(NJDEP Official)

(Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

40 WGT P.O. Box 413 Jersey City, NJ.
Address

5-7-97
Mailing Date

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

J-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-6197
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1901 BROAD ST. CLIFTON N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

OW-25 LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

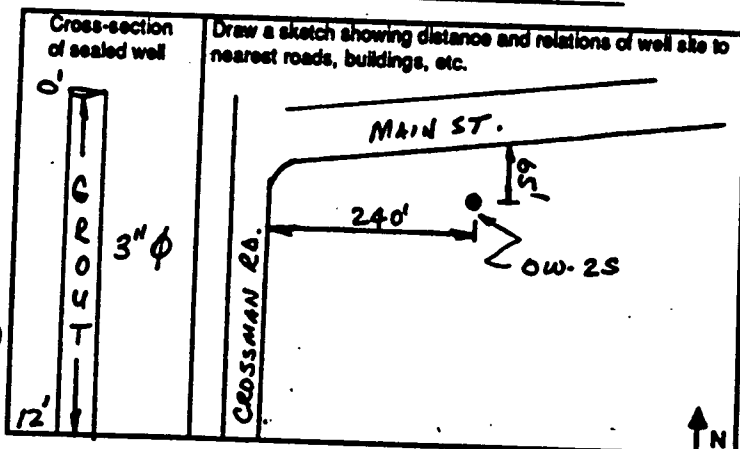
PERMIT # OF NEW WELL: —

TOTAL DEPTH OF WELL 12'
DIAMETER 3"
CASING LENGTH 2'
SCREEN LENGTH 10'
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

7 Gallons of Water
0 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: —

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: —

IF "YES", AUTHORIZATION GRANTED BY — ON — (NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

40 WGT P.O. Box 413 JERSEY CITY N.J. 5-7-97
Address Mailing Date

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

J-1296
Licensee #

COPIES: White - Water Allocation Yellow - Owner Pink - Health Dept. Goldenrod - Driller

14

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-6199
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

OW-3S LOT 2, Block 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

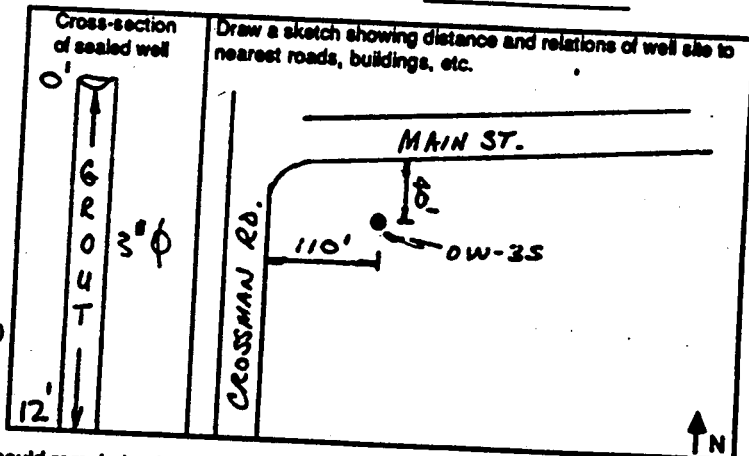
PERMIT # OF NEW WELL: _____

TOTAL DEPTH OF WELL 12'
DIAMETER 3"
CASING LENGTH 2'
SCREEN LENGTH 10'
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

7 Gallons of Water
44 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: _____

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____ (Date)
(NJDEP Official)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

40 WGT P.O. Box 413 Jersey City N.J.
Address

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date

J-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
5/93

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-6198
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

OW-3D LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

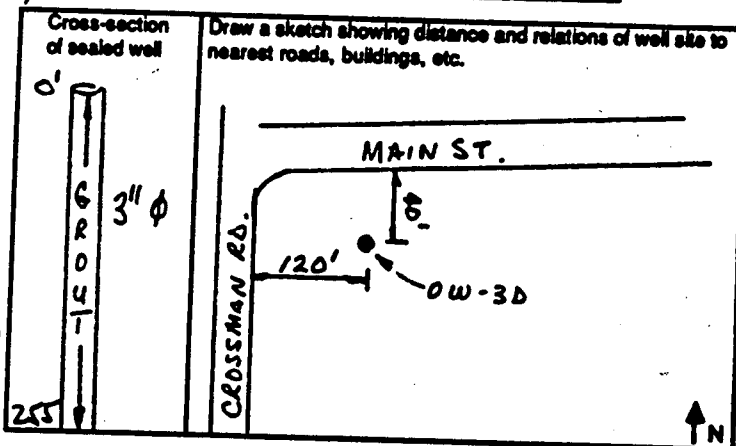
PERMIT # OF NEW WELL: _____

TOTAL DEPTH OF WELL 25.5'
DIAMETER 3"
CASING LENGTH 20.5'
SCREEN LENGTH 5'
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

8 Gallons of Water
100 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: _____

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____ (NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

P.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

40 WET P.D. BOX 413 Jersey City, NJ
Address

4-7-97
Mailing Date

P.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

J-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-6201
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON, N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

OW-4S LOT 2, BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

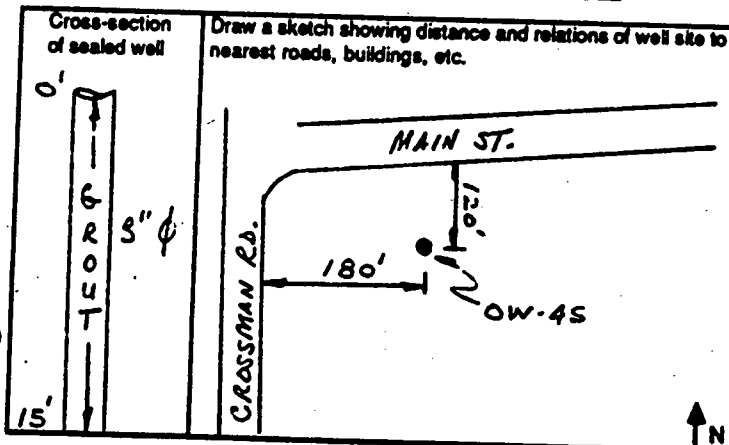
PERMIT # OF NEW WELL: _____

TOTAL DEPTH OF WELL 15'
DIAMETER 3"
CASING LENGTH 3'
SCREEN LENGTH 10'
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

7 Gallons of Water
0.5 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☒ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: _____

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____ (Date)
(NJDEP Official)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

40 WGT. FOOT OF JERSEY AVE. JERSEY CITY, NJ 5-7-97
Address Mailing Date

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

J-1296
License #

COPIES: White - Water Allocation Yellow - Owner Pink - Health Dept. Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-6200
of well sealed

DATE WELL SEALED 9-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.
ADDRESS 1401 BROAD ST. CLIFTON N.J. 07015 MIDDLESEX COUNTY
WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J.
Street & No., Township, County
DU-4A LOT 4 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

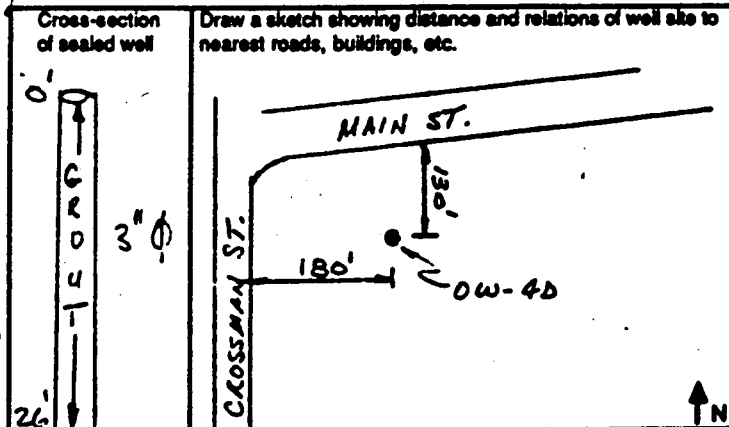
PERMIT # OF NEW WELL: _____

TOTAL DEPTH OF WELL 26'
DIAMETER 3"
CASING LENGTH 21'
SCREEN LENGTH 5'
NUMBER OF CASINGS 1

MATERIAL USED TO SEAL WELL:

10 Gallons of Water
125 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☒ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: _____

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____ (NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer/
Performing Work (Print or Type)

90 WGT P.O. Box 413 Jersey City, NJ
Address

5-7-97
Mailing Date

R.V. Gregory
Signature of NJ Certified Well Sealer/
Performing Work

J-1296
License #

COPIES: White - Water Allocation Yellow - Owner Pink - Health Dept. Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-25273
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEY CHEMICAL CORP.

ADDRESS 1421 BROAD ST. CLIFTON, N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

DW-1070 LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

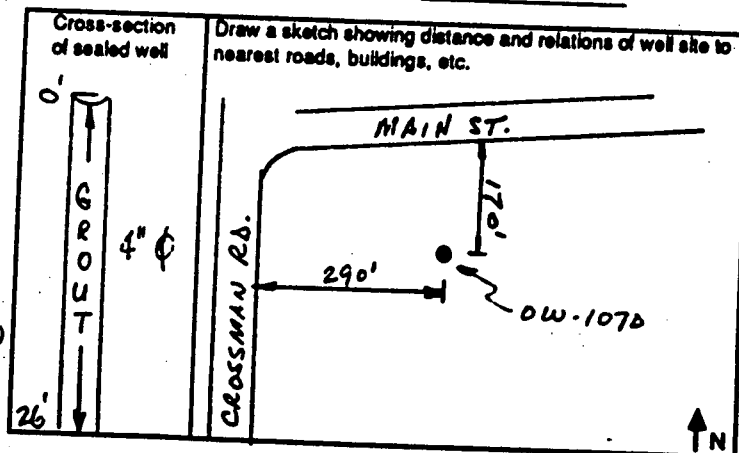
PERMIT # OF NEW WELL: ---

TOTAL DEPTH OF WELL 26'
DIAMETER 4"
CASING LENGTH 20'
SCREEN LENGTH 6'
NUMBER OF CASINGS ---

MATERIAL USED TO SEAL WELL:

14 Gallons of Water
125 Lbs. of Cement
--- Lbs. of Bentonite
--- Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: ---

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: ---

IF "YES", AUTHORIZATION GRANTED BY ---

(NJDEP Official)

ON ---

(Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

40 WGT. P.O. Box 413 Jersey City N.J.
Address

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date

J-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-28563
of well sealed

DATE WELL SEALED 4-16-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

DZ-1 LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

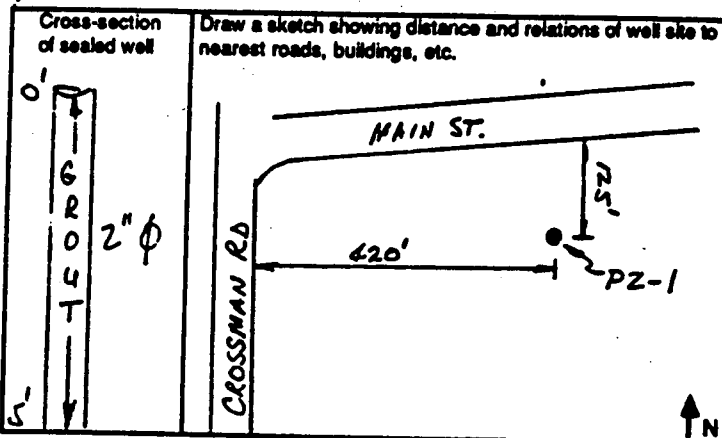
PERMIT # OF NEW WELL:

TOTAL DEPTH OF WELL 5'
DIAMETER 2"
CASING LENGTH 0'
SCREEN LENGTH 5'
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

1 Gallons of Water
1/2 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL:

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS:

IF "YES", AUTHORIZATION GRANTED BY ON (NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

c/o WBI PC Box 413 Jersey City, N.J.
Address

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date
J-1296
License #

COPIES: White - Water Allocation Yellow - Owner Pink - Health Dept. Goldenrod - Driller

20

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-28564
of well sealed

DATE WELL SEALED 9-16-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST CLIFTON, N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

PZ-2 LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

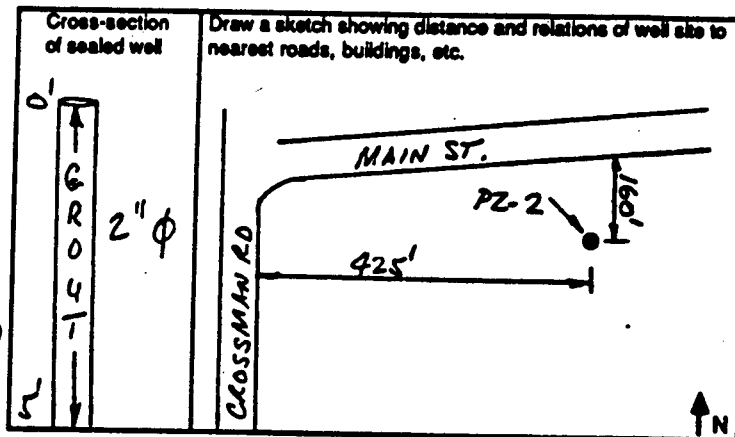
PERMIT # OF NEW WELL: _____

TOTAL DEPTH OF WELL 5'
DIAMETER 2"
CASING LENGTH 0'
SCREEN LENGTH 5'
NUMBER OF CASINGS 1

MATERIAL USED TO SEAL WELL:

1 Gallons of Water
12 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: _____

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____ (NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

P. V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

c/o WGT P.O. BOX 413 Jersey City, NJ
Address

P. V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date
J-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # 26-28565
of well sealed

DATE WELL SEALED 4-16-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST CLIFTON, N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX
Street & No., Township, County

PZ-3 LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

PERMIT # OF NEW WELL: _____

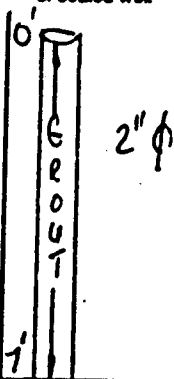
TOTAL DEPTH OF WELL 7'
DIAMETER 2"
CASING LENGTH 6'
SCREEN LENGTH 1'
NUMBER OF CASINGS 1

MATERIAL USED TO SEAL WELL:

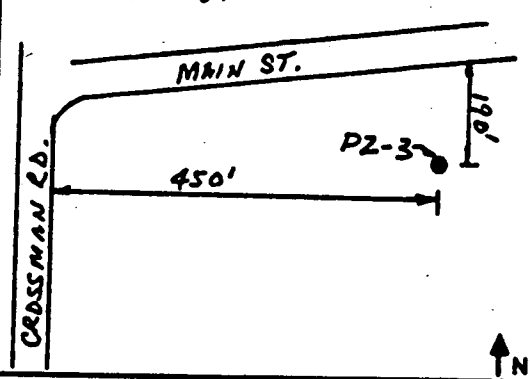
1 Gallons of Water
12 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated

Cross-section
of sealed well



Draw a sketch showing distance and relations of well site to
nearest roads, buildings, etc.



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: _____

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____ (Date)
(NJDEP Official)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

10 WGT PO Box 413 Jersey City NJ
Address

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date
J-1296
License #

COPIES: White - Water Allocation Yellow - Owner Pink - Health Dept. Goldenrod - Driller

22

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # UNKNOWN
of well sealed

DATE WELL SEALED 9-16-97

PROPERTY OWNER ESSEX CHEMICAL CORP

ADDRESS 1401 BROAD ST. CLIFTON N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

OW-15 LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

PERMIT # OF NEW WELL:

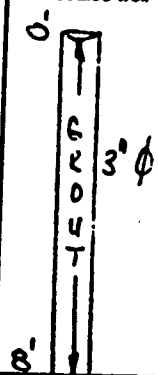
TOTAL DEPTH OF WELL 8'
DIAMETER 3"
CASING LENGTH 3'
SCREEN LENGTH 1'
NUMBER OF CASINGS 1

MATERIAL USED TO SEAL WELL:

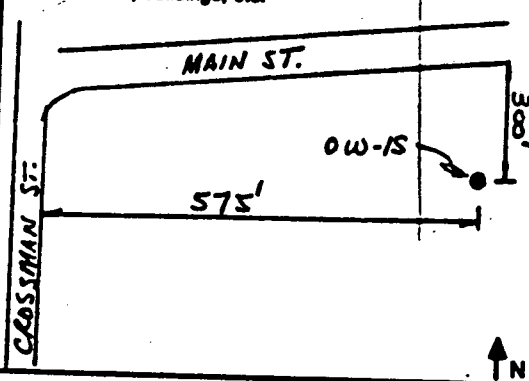
7 Gallons of Water
92 Lbs. of Cement
 Lbs. of Bentonite
 Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated

Cross-section
of sealed well



Draw a sketch showing distance and relations of well site to nearest roads, buildings, etc.



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL:

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS:

IF "YES", AUTHORIZATION GRANTED BY ON (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

10 WGT PO Box 413 Jersey City, N.J.
Address

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date
J-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

23

DWR-420
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # UNKNOWN
of well sealed

DATE WELL SEALED 6-16-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON N.J. 07105

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

OW-10 LOT 2 Block 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

PERMIT # OF NEW WELL: _____

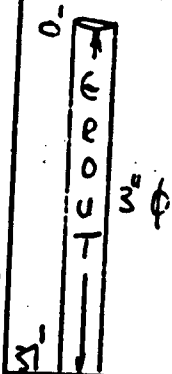
TOTAL DEPTH OF WELL 37.0'
DIAMETER 3"
CASING LENGTH 29'
SCREEN LENGTH 8'
NUMBER OF CASINGS 1

MATERIAL USED TO SEAL WELL:

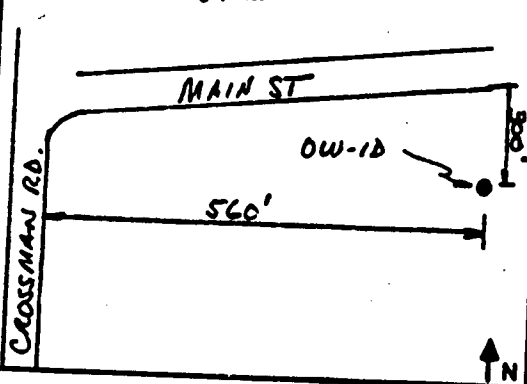
11 Gallons of Water
197 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated

Cross-section
of sealed well



Draw a sketch showing distance and relations of well site to
nearest roads, buildings, etc.



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions
must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: _____

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____

(NJDEP Official)

ON _____

(Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

P.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

Address

P.V. GREGORY P.O. Box 413

P.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date

J-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

24

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # UNKNOWN
of well sealed

DATE WELL SEALED 9-16-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

OW-1060 LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES ☒ NO

PERMIT # OF NEW WELL: _____

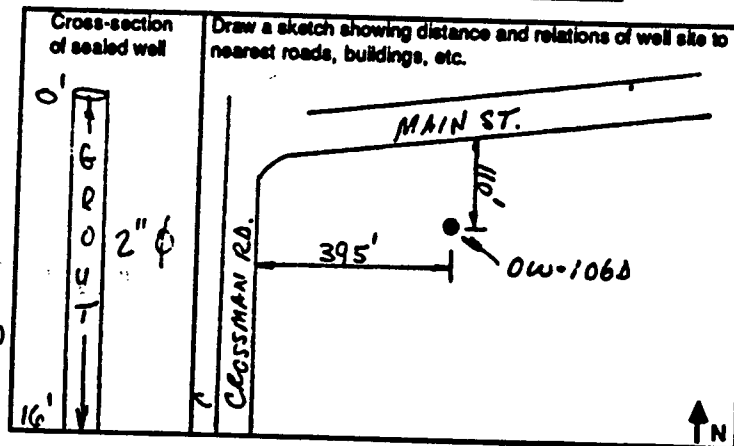
TOTAL DEPTH OF WELL 16'
DIAMETER 2"
CASING LENGTH 11'
SCREEN LENGTH 5'
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

<u>7</u>	Gallons of Water
<u>12</u>	Lbs. of Cement
<u>—</u>	Lbs. of Bentonite
<u>—</u>	Lbs. of Sand/Gravel

(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: _____

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____
(NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

90 WGT PO Box 413 Jersey City N.J.
Address

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date

J-1296
License #

COPIES: White - Water Allocation Yellow - Owner Pink - Health Dept. Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # UNKNOWN
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

OW-1075 LOT 2 Block 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

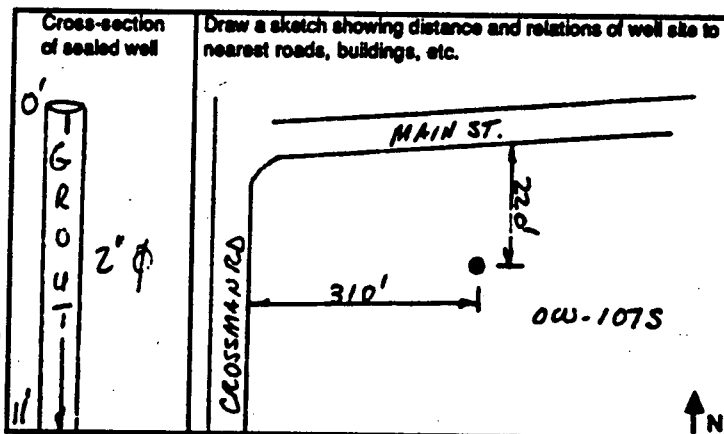
PERMIT # OF NEW WELL: _____

TOTAL DEPTH OF WELL 11'
DIAMETER 2"
CASING LENGTH 6'
SCREEN LENGTH 5'
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

2 Gallons of Water
2.5 Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: _____

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____
(NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. FREED
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

1401 BROAD ST. CLIFTON N.J.
Address

R.V. FREED
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date
J-1296
License #

COPIES: White - Water Allocation Yellow - Owner Pink - Health Dept. Goldenrod - Driller

26

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # UNKNOWN
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

OW-111S LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

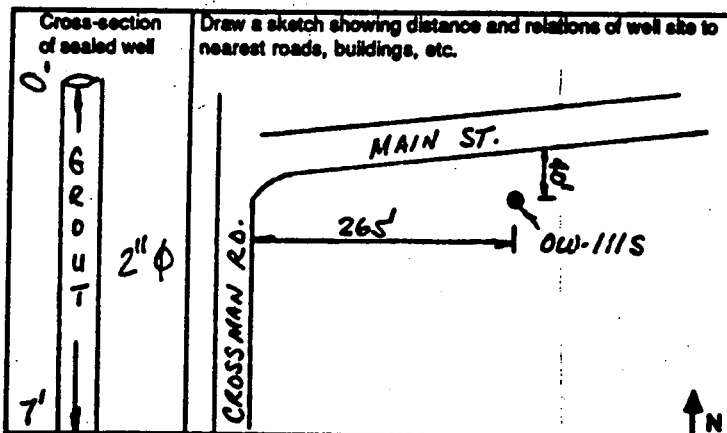
PERMIT # OF NEW WELL: —

TOTAL DEPTH OF WELL 7'
DIAMETER 2"
CASING LENGTH 2'
SCREEN LENGTH 2'
NUMBER OF CASINGS 5

MATERIAL USED TO SEAL WELL:

1 Gallons of Water
— Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☐ Consolidated
☒ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: —

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: —

IF "YES", AUTHORIZATION GRANTED BY — ON — (Date)
(NJDEP Official)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

C/O WGI PO Box 413 Jersey City NJ
Address

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date
J-1296
License #

COPIES: White - Water Allocation Yellow - Owner Pink - Health Dept. Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # UNKNOWN
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

OW-111S LOT 2 BLOCK 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

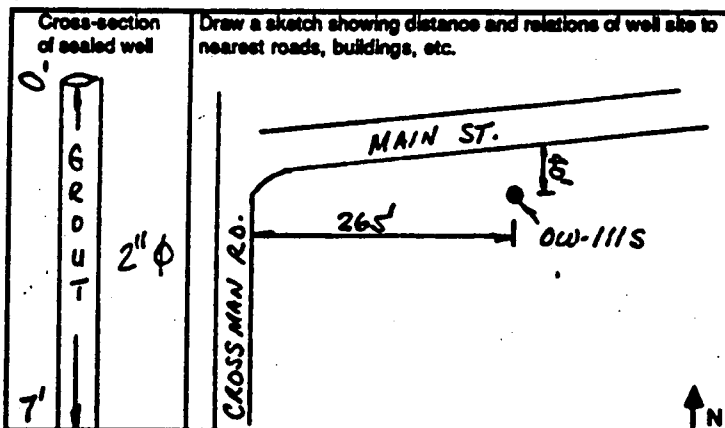
PERMIT # OF NEW WELL: _____

TOTAL DEPTH OF WELL 7'
DIAMETER 2"
CASING LENGTH 2'
SCREEN LENGTH 5'
NUMBER OF CASINGS _____

MATERIAL USED TO SEAL WELL:

1 Gallons of Water
1/2 Lbs. of Cement
_____ Lbs. of Bentonite
_____ Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☒ Consolidated
☐ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES ☒ NO CASING MATERIAL: _____

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____ (NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:29-9.1 et seq.

R.V. Gregory
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

40 W 61 PO Box 913 Jersey City N.J.
Address

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5-7-97
Mailing Date
J-1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
5/95

New Jersey Department of Environmental Protection
Water Supply Element — Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
CN 426
Trenton, NJ 08625-0426

WELL PERMIT # UNKNOWN
of well sealed

DATE WELL SEALED 4-17-97

PROPERTY OWNER ESSEX CHEMICAL CORP.

ADDRESS 1401 BROAD ST. CLIFTON N.J. 07015

WELL LOCATION 1 CROSSMAN RD. SAYREVILLE N.J. MIDDLESEX COUNTY
Street & No., Township, County

OW-1110 LOT 2 Block 251
Well No. Lot & Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING PURPOSES

REASON FOR ABANDONMENT: NO LONGER NEEDED

WAS A NEW WELL DRILLED? ☐ YES

☒ NO

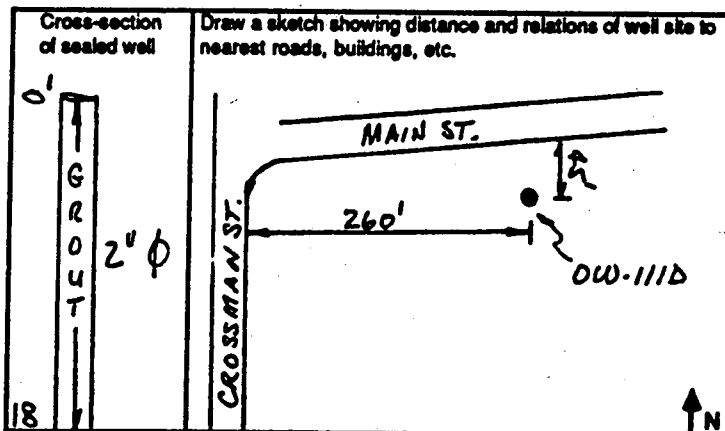
PERMIT # OF NEW WELL: _____

TOTAL DEPTH OF WELL 18'
DIAMETER 2"
CASING LENGTH 13'
SCREEN LENGTH 5'
NUMBER OF CASINGS —

MATERIAL USED TO SEAL WELL:

4 Gallons of Water
— Lbs. of Cement
— Lbs. of Bentonite
— Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☐ Consolidated
☒ Unconsolidated



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☐ YES

☒ NO

CASING MATERIAL: _____

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES

☒ NO

WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____

(NJDEP Official)

ON _____

(Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

R.V. GREGORY
Name of NJ Certified Well Sealer
Performing Work (Print or Type)

10 WGT PO Box 413 Jersey City NJ
Address

5-7-97
Mailing Date

R.V. Gregory
Signature of NJ Certified Well Sealer
Performing Work

5.1296
License #

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller